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National Energy Board

Reasons for Decision

Trans Québec & Maritimes Pipeline Inc.

PNGTS Extension

GH-1-97

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National Energy Board

Reasons for Decision

In the Matter of

Trans Québec & Maritimes Pipeline Inc.

PNGTS Extension

Application dated 30 April 1997

GH-1-97

April 1998

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Cat. No. NE22-1/1998-2E
ISBN 0-662-26732-X

This report is published separately in both official languages.

Copies are available on request from:
The Publications Office
National Energy Board
311 Sixth Avenue S.W.
Calgary, Alberta, T2P 3H2
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Fax: (403) 292-5503
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For pick-up at the NEB office:
Library
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Printed in Canada

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N° de cat. NE22-1/1998-2F
ISBN 0-662-82821-6

Ce rapport est publié séparément dans les deux langues officielles.

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Imprimé au Canada

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Abbreviations

Agency	Canadian Environmental Assessment Agency
Bay State	Bay State Gas Company
Bcf	billion cubic feet
CAPP	Canadian Association of Petroleum Producers
CEAA	*Canadian Environmental Assessment Act*
CoEnergy	CoEnergy Trading Company
Consumers'	The Consumers' Gas Company Ltd.
CSR	Comprehensive Study Report
DFO	Department of Fisheries and Oceans
Direct Energy	Direct Energy Marketing Limited
EDA	eastern delivery area (of TransCanada PipeLines Limited)
FERC	Federal Energy Regulatory Commission
Gaz Métropolitain	Gaz Métropolitain and Company, Limited Partnership
GJ	gigajoules
km	kilometre
kPa	kiloPascals
LCU	loss of critical unit
m	metre
mm	millimetre
M&NE	Maritimes & Northeast Pipeline Management Ltd.
Mcf	thousand cubic feet
MMcfd	million cubic feet per day
MRC	*Municipalité régionale de comté* [municipal regional county]
MW	megawatts

NEB or Board	National Energy Board
NEB Act	*National Energy Board Act*
Northern Utilities	Northern Utilities Inc.
Pipeline Crossing Regulations	*National Energy Board Pipeline Crossing Regulations Parts I and II*
PJ	petajoules
PNGTS	Portland Natural Gas Transmission System
Portland/Montreal Pipeline	Portland Pipe Line Corporation / Montreal Pipe Line Limited systems
Sproule	Sproule Associates Limited
TBtu	trillion British thermal units
Tcf	trillion cubic feet
TCGS	TransCanada Gas Services (a division of TransCanada Energy Ltd.)
TQM or the Company	Trans Québec & Maritimes Pipeline Inc.
TransCanada	TransCanada PipeLines Limited
Union	Union Gas Limited and Centra Gas Ontario Inc.
UPA	Union des producteurs agricoles [association of agricultural producers]
10^3m^3	thousand cubic metres
$10^3m^3/d$	thousand cubic metres per day
$10^6m^3/d$	million cubic metres per day
10^9m^3	billion cubic metres
$10^{12}m^3$	trillion cubic metres

Glossary

GH-2-87	NEB Hearing Order in respect of TransCanada PipeLines Limited's application for 1989 Facilities
GH-5-89	NEB Hearing Order in respect of TransCanada PipeLines Limited's application for 1991 and 1992 Facilities
GH-R-1-92	NEB Hearing Order to review the GH-1-91 Decision in respect of TransCanada PipeLines Limited's application for the Blackhorse Extension
GH-2-97	NEB Hearing Order in respect of TransCanada PipeLines Limited's application for 1998 facilities
mitigative measures	in respect of a project, the elimination, reduction or control of the adverse environmental effects of the project, and includes restitution for any damage to the environment caused by such effects through replacement, restoration, compensation or any other means
Part III	the part of the *National Energy Board Act* which deals with the construction and operation of pipelines.
Part IV	the part of the *National Energy Board Act* which deals with traffic, tolls and tariffs.
Responsible Authority	a federal authority that is required, under the *Canadian Environmental Assessment Act*, to ensure that an environmental assessment of the project is conducted
RH-1-88	NEB Hearing Order in respect of TransCanada PipeLines Limited's application for tolls effective 1 January 1988 and 1 January 1989
RH-3-97	NEB Hearing Order to establish a proceeding to consider TransCanada PipeLines Limited's contract renewal rights provisions and expansion policy requirements
right-of-way	legal right of passage over public or private lands, or, the area in which this right is exercised

Recital and Appearances

IN THE MATTER OF the *National Energy Board Act* ("NEB Act") and the Regulations made thereunder;

IN THE MATTER OF an application dated 30 April 1997 by Trans Québec & Maritimes Pipeline Inc. ("TQM") for a certificate of public convenience and necessity under Part III of the NEB Act authorizing the construction of additional transmission facilities from Lachenaie to East Hereford in Quebec, known as the PNGTS Extension;

IN THE MATTER OF an application by TQM for an order pursuant to Part IV of the NEB Act accepting the principle of adding the PNGTS Extension in the description of TransCanada PipeLines Limited's ("TransCanada") Eastern Zone; and

IN THE MATTER OF National Energy Board Hearing Order GH-1-97.

HEARD in Montreal, Quebec, on 17, 18, 19, 20 and 21 November 1997; in Magog-Orford, Quebec on 24, 25, 26, 27, 28 and 29 November 1997; in Montreal on 1, 2, 3 and 4 December 1997; on 9 December 1997 in Magog-Orford; and on 15, 16 and 17 December 1997 in Montreal.

BEFORE:

G. Caron	Presiding Member
J. A. Snider	Member
D. Valiela	Member

APPEARANCES:

L. A. Leclerc	Trans Québec & Maritimes Pipeline Inc.
M. Pinney	Canadian Association of Petroleum Producers
R. Régimbald	Association pour la protection de l'environnement du Lac O'Malley
R. Cloutier	Coalition des propriétaires concernés par un gazoduc
J.-G. Dépôt	Conseil régional de l'environnement de l'Estrie
C. D'Auteuil	Conseil régional de l'environnement de la Montérégie
C. Lanoux	Fédération de l'UPA de l'Estrie
M. Saucier	Fédération de l'UPA de Saint-Hyacinthe
L. Roy-Alain	Fondation Bel Environ d'East Hereford

L. Roy-Alain N. Roy	Groupe des Frontières
J. Burcombe	Mouvement au Courant
F. Valiquette	Syndicat des employés de Gaz Métropolitain Inc.
F. Bisson	Syndicat des employés professionnels et de bureau de Gaz Métropolitain Inc.
D. Brodeur	Syndicat de l'UPA Provençal
A. Hollingworth	Bay State Gas Company Portland Natural Gas Transmission System Northern Utilities
Y. Rheault	Boralex Inc.
J. Farrell	The Consumers' Gas Company Limited
J. Hall	Flora Quebeca and Fleurbec
B. Bouliane	2530-6036 Québec Inc.
L. Riendeau	Ferme A. L. Tétrault s.e.n.c. Ferme Desnoyers et Frères Inc. Ferme Lacoste et Frères Inc. M. Leduc R. Martineau A. Riendeau A. T. Robert P. Vadnais and On His Own Behalf
M. Beloin H. Pariseau	Ferme Marc Beloin et Hélène Pariseau
N. Roy	Ferme Piscicole des Bobines Inc.
Y. Alain	Ferme Yval Inc.
J. Bertrand P. Lemieux	Hydro-Québec
J. Smellie	Irving Oil Limited

L. Smith	Sable Offshore Energy Project
N. Gretener	Maritimes & Northeast Pipeline Management Ltd., on behalf of Maritimes & Northeast Pipeline, Limited Partnership; and Maritimes & Northeast Management Company, on behalf of Maritimes & Northeast Pipeline Company, L.L.C.
K. M. C. Fernandez L. Smith	Mobil Oil Canada
J. Roy	Pisciculture des Arpents Verts
R. Lassonde M. Imbleau	Gaz Métropolitain and Company, Limited Partnership
P. Jeffrey	TransCanada PipeLines Limited
G. Cameron	Union Gas Limited and Centra Gas Ontario Inc.
E. Alvarez and C. Chevalier-Alvarez	On Their Own Behalf
H. and G. Barrette J. and J. Nolin	On Their Own Behalf
L. Barrette	On Her Own Behalf
N. Benoit	On His Own Behalf
D. F. Blais	On His Own Behalf
G.-É. Boisvert	On His Own Behalf
R. Boisvert	On His Own Behalf
G. Brodeur	On His Own Behalf
I. Charron	On Her Own Behalf
M. Cloutier	On His Own Behalf
R. Corriveau	On His Own Behalf
S. de Paoli	On His Own Behalf
L. Depadova	On Her Own Behalf
G. Fortier	On His Own Behalf
N. Fortin and H. Giroux	On Their Own Behalf

O. Gagné	On His Own Behalf
R. Grandbois	On His Own Behalf
R. Guillette	On Her Own Behalf
F. and F. Ménard	On Their Own Behalf
B. Miller and L. Adams	On Their Own Behalf
K. Pierce and D. Potvin	On Their Own Behalf
N. Plante	On Her Own Behalf
G. W. and C. Richards	On Their Own Behalf
Y. Robert	On His Own Behalf
C. Roy	On Her Own Behalf
L. Roy-Alain	J.-P. Roy and On Her Own Behalf
E. Terrall Hermand	On Her Own Behalf
E. Thériault	On His Own Behalf
G.-É. Boisvert G. W. Richards	Municipalité du Village de Stukely-Sud
D. Gilbert	MRC of Memphrémagog
I. Blue	Province of New Brunswick
H. Huber G. Forsano	Province of Nova Scotia
J. Brisson	Procureur général du Québec
C. Beauchemin G. Grondin	National Energy Board

Chapter 1

Introduction

1.1 Application

By application dated 30 April 1997, Trans Québec & Maritimes Pipeline Inc. ("TQM" or the "Company") applied to the National Energy Board (the "Board" or the "NEB") under Part III of the *National Energy Board Act* (the "NEB Act") for a certificate of public convenience and necessity authorizing the construction and operation of additional natural gas transmission facilities that would extend its current system from Lachenaie, located east of Montreal, to East Hereford, near the Canada-United States ("U.S.") border between Quebec and New Hampshire (see Figure 1.1). At that point, TQM would connect to the facilities of the Portland Natural Gas Transmission System ("PNGTS") to serve markets in the U.S. Northeast. The facilities would also serve the existing market of Gaz Métropolitain and Company, Limited Partnership ("Gaz Métropolitain") through a new delivery point at Waterloo, Quebec. TQM called the project the "PNGTS Extension" and expects to be able to provide the new service effective 1 November 1998.

TQM also applied for an order pursuant to Part IV of the NEB Act accepting the principle of adding the PNGTS Extension in the description of TransCanada PipeLines Limited's ("TransCanada") Eastern Zone.

In selecting the route it submitted for approval, TQM initially defined a study area and then identified elements within that area that it considered environmentally sensitive. It developed corridors, including sections where it was considered necessary to develop technically and economically feasible alternative means to carry out the project. The last step involved selecting the route and identifying alternative routes. TQM asked the Board to approve, in addition to the proposed route, two alternative routes in the municipalité régionale de comté ("MRC") of Memphrémagog.

Because the project involves the construction of a pipeline more than 75 kilometres ("km") in length on a new right-of-way, and pursuant to a decision of the Responsible Authorities under the *Canadian Environmental Assessment Act* ("CEAA"), the project was made subject to a comprehensive study.

By letter dated 10 September 1997, the Board issued the final scope of the environmental assessment as well as Hearing Order GH-1-97. The Board decided to conduct an oral public hearing to obtain the evidence and views of interested persons on TQM's application, pursuant to the NEB Act, in respect of the proposed facilities. The Board also decided that the hearing would be used as a forum for public participation in the comprehensive study. The Board also established the Directions on Procedure and the List of Issues (see Appendix I for the list of issues).

To facilitate participation of the public in the Board's hearing process, Board staff conducted public seminars in advance of the oral hearing to explain the processes and procedures related to the hearing and to routing and land acquisition matters as well as to answer related questions. The seminars were held in late September and early October 1997 in Coaticook, Magog-Orford, Granby and Sainte-Julie, in Quebec.

The hearing alternated between Montreal and Magog-Orford, and lasted 19 days, beginning on 17 November 1997 and ending on 17 December 1997.

1.2 Environmental Assessment Process

Since TQM's proposed PNGTS Extension involves the construction of a pipeline more than 75 km in length on a new right-of-way, it is subject to the *Comprehensive Study List Regulations*, specifically paragraph 14(a) of the Regulations, under the terms of the CEAA. Pursuant to paragraph 21(a) of the CEAA, the project would either be subject to a comprehensive study to be conducted by the Responsible Authorities or referred to the Minister of the Environment for referral to a mediator or a review panel.

Pursuant to paragraphs 5(1)(c), 5(1)(d) and 5(2)(b) of the CEAA, it was determined that the Board, Environment Canada, and the Department of Fisheries and Oceans ("DFO") (Canadian Coast Guard) were Responsible Authorities. The Responsible Authorities decided that a comprehensive study report ("CSR") would be prepared and filed with the Minister of the Environment and the Canadian Environmental Assessment Agency ("Agency"). Environment Canada later indicated that it was considering carrying out its own environmental assessment of the impact of the project on île aux Fermiers. Environment Canada also indicated that discussions are still ongoing with TQM to establish conditions with respect to the disposition of interests in the island to allow passage of the pipeline.

The Board submitted the CSR to the Minister of the Environment and the Agency on 20 February 1998. The Agency released the CSR for public review and comments on 25 February 1998.

By letter sent to the Board on 31 March 1998, the Minister of the Environment referred the project back to the Board as well as DFO for action pursuant to subsection 37(1) of the CEAA. Having taken into consideration the CSR and public comments filed pursuant to the CEAA, the Minister of the Environment concluded that the project, as described, is not likely to cause significant adverse environmental effects.

The Board's mandate to consider environmental and socio-economic matters is found under both the CEAA and NEB Act. In relation to environmental issues, both legislative mandates were satisfied by the CSR[1]. Only the socio-economic matters arising from environmental changes were considered in the CSR pursuant to the CEAA; the other socio-economic matters were considered pursuant to the NEB Act. These Reasons for Decision fulfill the Board's mandate under the NEB Act.

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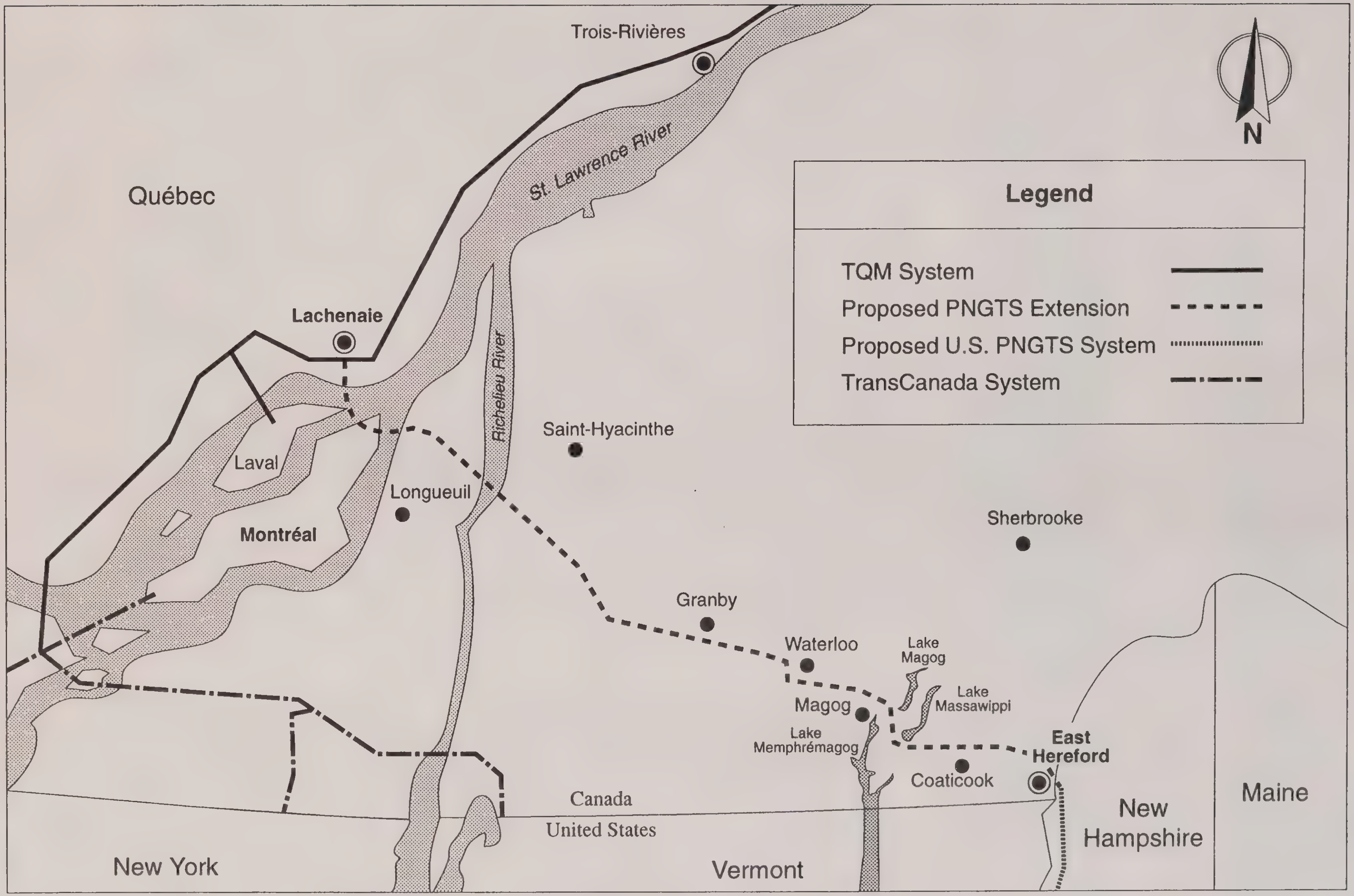
[1] Copies of the report entitled "Comprehensive Study Report, Trans Quebec & Maritimes Pipeline Inc. - PNGTS Extension - GH-1-97" are available on request from the Board.

Figure 1.1
Systems Map



Chapter 2

Gas Supply, Markets and Specific Transportation Projects

2.1 Overall Gas Supply

TQM relied upon the study prepared by Sproule Associates Limited ("Sproule") entitled *The Future Natural Gas Supply Capability of the Western Canada Sedimentary Basin 1996-2018*, dated May 1997, as evidence of overall gas supply. The study uses TransCanada's supply model, developed by Sproule, which projects future productive capacity and rate of return to the upstream sector based on a specific gas price forecast, a gas demand forecast, cost, gas available from existing pools and gas expected to be available from reserves additions.

Sproule prepared sensitivity analyses around alternative projections of future reserves additions, which Sproule considers, at this time, to be the most critical issue in assessing future productive capacity from Western Canada. For the "Base Case", Sproule adopted a reserves addition equation that extends from the 25-year historical rate of 28 10^3m^3 per metre (298 Mcf per foot) of gas-intent drilling, with a gradual decline to zero at the ultimate resource estimate of 9.3 $10^{12}m^3$ (329 Tcf). "Sensitivity 1" (the high reserves additions case) assumed that the 25-year historical trend in reserves additions would be sustained at 28 10^3m^3 per metre (298 Mcf per foot) of gas-intent drilling. "Sensitivity 2" (the low reserves additions case) utilized a reserves addition equation that assumed an immediate 18 percent reduction in the discovery rate, resulting in a reserves addition rate commencing at approximately 23 10^3m^3 per metre (245 Mcf per foot) declining exponentially to 14 10^3m^3 per metre (150 Mcf per foot) at the ultimate resource estimate, which Sproule considers a more conservative approach.

The "Base Case" analysis for conventional resources in the Western Canada Sedimentary Basin identified a supply/demand cross-over in year 2015, with a deficit in production relative to demand of 3.4 10^9m^3 (0.1 Tcf) in the year 2018. The supply/demand cross-over for the "Sensitivity 1" analysis was reported to occur beyond year 2018, while a cross-over in year 2007 was reported for the "Sensitivity 2" analysis. Peak annual production in the "Base Case" was projected at 212 10^9m^3 (7.5 Tcf) while peak annual productions in the "Sensitivity 1" and "Sensitivity 2" analyses were projected at 218 10^9m^3 (7.7 Tcf) and 198 10^9m^3 (7.0 Tcf), respectively.

The Sproule report also included an analysis of the coalbed methane potential of the Alberta Plains. The unconstrained coalbed methane resource potential of the Alberta Plains was estimated at 18.9 $10^{12}m^3$ (668.6 Tcf) of gas-in-place while the technically constrained resource potential was estimated at 6.1 $10^{12}m^3$ (214.3 Tcf). At a constant price of $1.90/GJ ($2.00/Mcf), Sproule estimated that the coalbed methane reserve potential for the Alberta Plains would be some 225 10^9m^3 (8 Tcf). In Sproule's opinion, the coalbed methane reserve potential in the Alberta Foothills and British Columbia is at least equal to that of the Alberta Plains.

No intervenor expressed concern over Sproule's estimates of supply capability.

Views of the Board

While the forecasting of supply capability is an inherently uncertain task, as evidenced by the range of results obtained in Sproule's sensitivity analyses, the Board is satisfied that TQM has demonstrated that there would be sufficient overall gas supply to ensure adequate utilization of TQM's system, including the proposed facilities.

2.2 Long-term Domestic Market

TQM explained that, in preparing its domestic market projection, it relied on Gaz Métropolitain's assessments which took into account past experience, sales history, economic growth, discussions with existing and potential clients and projections regarding the competitiveness of natural gas. A market study produced by TransCanada, and adopted by TQM, projected that gas demand in Quebec will grow at an annual rate of approximately 2.7 percent, increasing from 230 PJ (218 Bcf) in 1995 to 342 PJ (324 Bcf) in 2010.

No party challenged TQM's forecasts.

Views of the Board

The Board is of the view that TQM's forecasts of long-term gas demand in Quebec are reasonable.

2.3 Long-term Export Market

To demonstrate the long-term nature of gas demand in the U.S. Northeast export market, TQM relied on forecasts prepared by DRI/McGraw Hill, the Gas Research Institute and the U.S. Department of Energy/Energy Information Administration. These forecasts indicate that annual growth rates for gas demand over the forecast period 1995 to 2010 will range between 1.0 and 1.7 percent, resulting in gas demand increasing from 3160 TBtu (3070 Bcf) in 1995 to 3930 TBtu (3820 Bcf) in 2010. TQM adopted TransCanada's evidence to the effect that it concluded that these forecasts demonstrate the existence of long-term U.S. Northeast market and the need for the transportation services.

No party challenged the long-term market evidence presented by TQM.

Views of the Board

The Board is satisfied with TQM's evidence regarding long-term gas demand in the U.S. Northeast market. The Board believes that there is a reasonable expectation that Canadian gas transported by the TQM system would meet some of the projected increase in demand in the U.S. Northeast market.

2.4 Specific Transportation Projects

TQM submitted that the applied-for facilities are required to provide service requested by TransCanada for delivery of gas received from the point of interconnection between the pipeline facilities of TransCanada and TQM to the point of interconnection between the pipeline facilities of TQM and the proposed U.S. PNGTS pipeline at East Hereford, Quebec. TQM's proposed facilities are supported by

six projects which would require incremental firm service totalling 5 266 $10^3m^3/d$ (185.9 MMcfd), contracted for an initial term of ten years commencing 1 November 1998. A summary of the five export projects and the domestic project is provided in Table 2.1.

Table 2.1
New Services Volumes

Shipper	1998-99 Volume $10^3m^3/d$	MMcfd
A. New Domestic Services (Eastern Delivery Area)		
Gaz Métropolitain and Company, Limited Partnership	955	33.7
B. New Export Services (East Hereford)		
Renaissance Energy Ltd.	130	4.6
TransCanada Gas Services	850	30.0
Androscoggin Energy LLC	895	31.6
CoEnergy Trading Company	2 266	80.0
Direct Energy Marketing Limited	170	6.0
Total Export	4 311	152.2
Total New Services	**5 266**	**185.9**

TQM submitted that, in the second year of operation, service requirements would total 7 329 $10^3m^3/d$ (258.7 MMcfd). Commencing 1 November 1999, domestic requirements would increase to 1 380 $10^3m^3/d$ (48.7 MMcfd) and export requirements, to 5 949 $10^3m^3/d$ (210.0 MMcfd) with increased service requests from CoEnergy Trading Company ("CoEnergy") and Androscoggin Energy LLC.

For the purpose of this proceeding, TQM adopted the supply, market and contractual obligations evidence introduced in the GH-2-97 hearing, which evidence covers all six projects except the project of Direct Energy Marketing Limited ("Direct Energy"). This last request for service is discussed later in this section.

One of the projects underpinning TransCanada's 1998 facilities expansion is Gaz Métropolitain's contract for 1 181 $10^3m^3/d$ (41.7 MMcfd) of firm transportation service on TransCanada for delivery to TransCanada's Eastern Delivery Area ("EDA"). To accommodate this request, TransCanada, in turn, requested TQM to deliver 955 $10^3m^3/d$ (33.7 MMcfd) at Waterloo. The difference in requirements on TransCanada's system versus those on TQM's system is Gaz Métropolitain's assignment of 226 $10^3m^3/d$ (8.0 MMcfd) of capacity to Vermont Gas Systems for delivery at Sabrevois.

TransCanada had originally requested 1 700 $10^3m^3/d$ (60.0 MMcfd) of service on TQM, approximately 745 $10^3m^3/d$ (26.3 MMcfd) higher than its current request. At the GH-1-97 hearing, TransCanada explained that Gaz Métropolitain had incorrectly determined its original requirement based on its maximum hourly requirements instead of its maximum day estimates. TQM explained that the

amendment had no impact on the design of the Waterloo meter station as well as the overall design of the proposed facilities.

Evidence filed in support of Gaz Métropolitain's service requirement indicated that the 955 $10^3m^3/d$ (33.7 MMcfd) volume would serve its entire franchise area and includes a 425 $10^3m^3/d$ (15.0 MMcfd) volume which is currently delivered to Gaz Métropolitain's franchise area utilizing TransCanada's short-haul service. This short-haul service commenced on 1 November 1997 and expires 1 November 1998. Included in the total volume, as well, is an average of 232 $10^3m^3/d$ (8.2 MMcfd) which would provide enhanced interruptible service to the Eastern Township region.

In addition to the long-haul conversion and enhanced interruptible service volumes, TQM submitted that Gaz Métropolitain's service requirement also reflects normal market growth. TQM projected that the market growth rate for the Quebec region, over the period 1995 to 2010, is approximately 2.7 percent per annum. Gas demand in Quebec is currently about 18 400 $10^3m^3/d$ (650 MMcfd) and annual market growth represents about 500 $10^3m^3/d$ (18 MMcfd).

In the view of Gaz Métropolitain, increased capacity at the proposed new Waterloo delivery point would provide it with flexibility across its system to balance demand throughout its franchise area.

During the second year of service, Gaz Métropolitain forecast an incremental requirement of 425 $10^3m^3/d$ (15.0 MMcfd) mainly due to the Magnola project. Métallurgie Magnola Inc., a proposed magnesium and magnesium-alloy production plant in the Eastern Townships with the potential to use 312 $10^3m^3/d$ (11.0 MMcfd) of natural gas, is expected to commence production in 1999. Gaz Métropolitain's market forecast anticipates that annual demand in the Eastern Township region will increase by an average of approximately 140 $10^3m^3/d$ (5 MMcfd), over the period 1999-2000 to 2002-2003.

The five export projects which underpin the applied-for facilities would supply the U.S. Northeast market. This market is currently served, in part, by the Portland Pipe Line Corporation / Montreal Pipe Lines Limited ("Portland/Montreal Pipeline") systems via an interconnect with TransCanada's system at Sabrevois and, in turn, with Gaz Métropolitain's system. The Portland/Montreal Pipeline lease agreement expires on 30 April 1998, after which the pipeline will be converted back to oil service.

Direct Energy's project, the only project which did not underpin TransCanada's 1998 facilities expansion considered in the GH-2-97 proceeding, represents a shift in delivery point from Sabrevois to East Hereford commencing 1 November 1998. Direct Energy requested the shift in delivery point in order to continue gas sales under a long-term agreement which expires, along with the underpinning export licence, on 31 October 2006. The gas sales agreement has been reviewed previously by the Board and this review resulted in the 29 October 1992 issuance of Export Licence GL-188. TransCanada contended that Direct Energy's supporting evidence has not changed since the issuance of the licence.

CoEnergy has only contracted for, or has customers who have contracted for, downstream service on the U.S. PNGTS system on a winter firm service basis only. During the GH-2-97 proceeding, TransCanada submitted that it continues to emphasize the need for shippers to have "matching" firm, year-round transportation on downstream pipelines to ensure that sufficient take-away arrangements are in place. It also stated, however, that it is prepared to review arrangements other than firm,

year-round, transportation contracts if it can be convinced that alternate arrangements provide reasonable assurance of sustained downstream deliveries. Because CoEnergy has provided for, or would provide for, such alternate arrangements, TransCanada included CoEnergy's project in its expansion application.

No party raised the issue of matching downstream interconnecting capacity with capacity contracted on TransCanada or TQM during this proceeding. However, concern was expressed about whether the applied-for facilities would be used at reasonable levels, in particular, during the first year of operation.

TQM indicated that the proposed facilities represent the last phase of a larger project to serve new markets in Quebec and the U.S. Northeast. TQM noted that the other phases of the larger project, TransCanada's facilities upstream of the TQM pipeline system and those of PNGTS downstream in the U.S., have already received their respective approvals from the Board and Federal Energy Regulatory Commission ("FERC"). TQM further noted that, in the GH-2-97 proceeding, certain shippers on the U.S. PNGTS system explained the urgency and economic importance of their respective projects.

TQM contended that no party questioned the market evidence with respect to the U.S. PNGTS system and that TransCanada had introduced new evidence which confirmed that the deliveries to East Hereford represent only a fraction of the true potential for the U.S. Northeast market. TQM also contended that only Gaz Métropolitain's evidence regarding the Eastern Townships market was questioned.

In respect of the domestic market, TQM submitted that the PNGTS Extension responds to significant additional market requirements of Gaz Métropolitain in the Eastern Township region. According to TQM, a new delivery point is required by Gaz Métropolitain at Waterloo to reinforce the distribution system in the Eastern Townships, develop industrial markets, penetrate residential and commercial markets and improve deliveries to interruptible service customers.

TQM stated that TransCanada is willing to sign a long-term transportation contract with TQM for the purpose of delivering gas volumes that TransCanada has committed to deliver to Gaz Métropolitain's EDA and to shippers at East Hereford. Precedent agreements to that effect have already been executed and form part of the record of the GH-2-97 proceeding.

Bay State Gas Company ("Bay State"), the Canadian Association of Petroleum Producers ("CAPP"), Gaz Métropolitain, Northern Utilities Inc. ("Northern Utilities"), PNGTS and TransCanada supported the new projects underpinning the proposed facilities.

Mouvement au Courant questioned whether there was a need for TQM's project and suggested that if the Maritimes & Northeast Pipeline Management Ltd. ("M&NE") project goes ahead, there would be ample supplies of gas along the coast line and, therefore, the U.S. PNGTS system could be supplied from the south. With respect to the Quebec market, Mouvement au Courant contended that the only immediate need is to reinforce Gaz Métropolitain's distribution system in the Eastern Townships, which could be achieved by a $15 million investment in Gaz Métropolitain's facilities.

M&NE did not oppose TQM's Application; however, M&NE stated that it had two areas of concern related to scheduling and delivery pressure charges which are discussed in Section 2.6, "Construction

and Regulatory Schedule" and Section 2.7, "Utilization Rate", of these Reasons for Decision, respectively.

Although Union Gas Limited and Centra Gas Ontario Inc. ("Union") stated that it is not opposed to TQM's project, it contended that there is a possibility of TQM's project not being in-service for the 1998-99 contract year. Union further stated that it does not dispute the evidence as to the potential of the market for natural gas in the U.S. Northeast. However, it maintained that the market off the U.S. PNGTS system and the variability of Gaz Métropolitain's service requests do not appear to justify the extra capacity that is obtained by using a 610 mm diameter pipe.

CAPP submitted that the need for additional pipeline access from the Western Canadian Sedimentary Basin to markets is indisputable.

Gaz Métropolitain noted that certain intervenors questioned its franchise requirements, both in terms of past years and future years. Gaz Métropolitain submitted that its market requirement evidence has remained consistent and unchallenged. Gaz Métropolitain argued that the proposed PNGTS Extension would enable it to meet demand, including additional peak-time and enhanced interruptible service demand, that cannot be met at this time because of a lack of upstream capacity at Sabrevois.

In addition to reinforcing its system in the Eastern Townships, Gaz Métropolitain contended that the new facilities should also have a beneficial impact on the Montreal-East and the South Shore regions in its franchise area. Gaz Métropolitain stated that the proximity of the proposed TQM facilities to its liquefied natural gas plant in Montreal-East would provide Gaz Métropolitain with increased peak shaving flexibility in terms of storage facilities management. Gaz Métropolitain was of the opinion that the route situated in the heart of its franchise area would, more than any other option, maximize gas sales in the Gaz Métropolitain franchise area and in the U.S. Northeast.

TransCanada stated that it is vitally interested in the outcome of this Application given that approximately 40 percent of TransCanada's 1998-99 expansion volumes are destined for delivery into the proposed U.S. PNGTS system, via TQM's system. TransCanada noted that the approval of its 1998-99 expansion facilities is conditional upon TQM receiving all necessary regulatory approvals for the proposed PNGTS Extension.

TransCanada and the Province of New Brunswick noted that the upstream supply and downstream market evidence was fully canvassed in the GH-2-97 proceeding and that it went unchallenged in both the GH-1-97 and GH-2-97 proceedings.

PNGTS noted that it has received the FERC Final Certificate[1] and requisite Certificates from the States of Vermont, New Hampshire and Maine. PNGTS submitted that, if a connect to East Hereford was denied, the Requests for Service of those shippers to export gas at East Hereford would be effectively denied as well and, thus, the shippers would be unduly adversely affected.

The Province of New Brunswick stated that, as part of its Energy Policy, the Province has been seeking access to natural gas for the last ten years. The Province's position is to encourage all

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[1] Conditional, *inter alia*, upon receiving Canadian authorizations.

pipeline proposals that would provide natural gas service to New Brunswick, at rates competitive with other energy forms.

Views of the Board

In determining whether there is a need for the proposed facilities and whether they will be supported by "ripe" projects, the Board takes into consideration all of the supply, market and contractual evidence. Upon assessing the evidence related to specific transportation services, the Board notes the broad support for the proposed facilities.

Subject to the comments of Section 2.5, "TransCanada Gas Services Supply", and on the basis of the project-specific supply information filed in this proceeding in respect of the other projects, the Board is satisfied with the gas supply arrangements outlined for domestic and export shippers.

With regard to Gaz Métropolitain's market, the Board notes Union's concern related to the apparent variability of Gaz Métropolitain's requirements forecast. However, after considering the evidence, the Board finds Gaz Métropolitain's market requirement forecast to be reasonable. Furthermore, the Board is satisfied with the gas market arrangements outlined for the export shippers.

Further, the Board notes that, as a result of Gaz Métropolitain's amended requirement at Waterloo, there would be an increase in the excess capacity built into the design of the proposed facilities. In the context of TQM's application, the Board is of the opinion that the resulting excess capacity is reasonable.

The Board finds that the applied-for facilities are required by TQM to provide service requested by TransCanada. The Board notes that Mouvement au Courant questioned the need for the proposed facilities and suggested other methods for supplying incremental Quebec and U.S. Northeast demand. However, these suggested other methods were not fully discussed in the evidentiary phase of the hearing. Without specific supporting evidence, the Board is not persuaded that there is merit in these other methods.

To ensure that the applied-for facilities, if certificated, are used and useful over the long-term, the Board believes that it would be appropriate to condition any certificate to require TQM, prior to the commencement of construction of the approved facilities, to demonstrate to the Board's satisfaction that:

(a) in respect of new firm export volumes, all necessary U.S. and Canadian regulatory approvals, including applicable long-term Canadian export authorizations have been granted; and

(b) in respect of the transportation services of new firm volumes on the TQM system:

    (i) transportation contracts have been executed, including the service contract between TQM and TransCanada;

(ii) all necessary U.S. and Canadian regulatory approvals have been granted in respect of any necessary downstream facilities or transportation services; and

(iii) gas supply contracts have been executed.

The Board is satisfied that the aforementioned certificate condition would ensure that only firm aggregate requirements underpin the new facilities.

2.5 TransCanada Gas Services Supply

TransCanada Gas Services ("TCGS"), a shipper which requires both TQM and TransCanada expansion capacity, did not provide any evidence of project-specific supply. TCGS stated that it would be relying on gas available on the open market and the belief that there is sufficient overall supply in the long-term to meet its requirements. TCGS indicated that it is willing to assume any associated price risk.

During the GH-2-97 proceeding, evidence was heard that TransCanada accepted TCGS into its queue even though it did not meet its own "10/10/10" rule[1] which TransCanada had anticipated would be modified as a consequence of the RH-3-97 proceeding which has been adjourned *sine die.*

TCGS's position is that a suitable long-term supply is available to it in the form of the competitive market that exists within the NOVA Gas Transmission Ltd. system, which allocates the available supply by means of the price mechanism. In TCGS's view, reliance on gas available on the open market is a commercially reasonable way for a shipper to proceed. TCGS submitted that it is a large sophisticated gas marketer whose overall operations dwarf the supply quantities that are being discussed in this proceeding. TCGS emphasized the interplay between shipper-specific and overall or global supply and suggested that, if there were a problem, it would relate to overall supply and not to whether or not a new shipper dedicated long-term shipper-specific supply. TCGS also stated that it is not seeking a generic change in policy nor is it trying to undermine or chip away at the Board's underlying economic feasibility determination.

The applied-for TQM facilities are dependant upon the construction of upstream facilities on the TransCanada system, which were the subject of the GH-2-97 proceeding. Attached to the GH-2-97 Reasons for Decision ("GH-2-97 Reasons") are a number of conditions that TransCanada is required to meet prior to commencing construction. M&NE raised the issue of project-specific supply as it relates to condition 12 of the GH-2-97 Reasons. This condition requires TransCanada to demonstrate to the Board's satisfaction that all necessary applicable long-term Canadian export authorizations have been granted and that gas supply contracts have been executed. M&NE stated that any attempt to vary condition 12 would be contentious and that any variance to TransCanada's Expansion Policy or the substitution of shippers would take time to resolve. M&NE highlighted the potential impact to the GH-1-97 construction schedule should this condition not be met.

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[1] In general, TransCanada requires an applicant seeking firm transportation capacity that would require expansion of its system to not only commit to service for a ten year period but also to demonstrate commitment of gas supply and market for a minimum of ten years.

Union expressed concern that certain shippers had submitted less supply evidence than others.

No other party addressed the question of TCGS's supply at the hearing.

To address the concern of the lack of project-specific supply on the part of TCGS, TQM indicated that a condition similar to Condition 12 placed on TransCanada in the GH-2-97 Reasons was not necessary. Rather, TQM indicated it would accept a condition in the certificate that, prior to construction, TQM demonstrate to the Board that transportation contracts have been executed.

TransCanada indicated that it considers that the evidence is sufficient in this case to justify a certificate without imposing a condition that TQM demonstrate that there are executed gas supply contracts in place prior to construction. However, should a condition be necessary, TransCanada suggested that a condition which requires TQM to have signed transportation contracts executed would be acceptable.

Views of the Board

In respect of project-specific supply, the Board has considered the information provided by TCGS, whose evidence does not fully comply with TransCanada's Expansion Policy Requirements or the Board's *Guidelines for Filing Requirements*. The Board is not persuaded by TCGS's view that the magnitude of the volumes at issue is not significant when compared to TCGS's overall operations.

The Board is aware that issues relating to TransCanada's Expansion Policy Requirements, including project-specific gas supply, were intended to be addressed in the Board's RH-3-97 proceeding which has since been adjourned *sine die*. The shipper and TransCanada had anticipated that the policy might have been relaxed to accommodate the provision of less information in the area of project-specific gas supply.

The Board also notes the submissions of parties that the facilities are needed and that construction should not be delayed.

In these circumstances, the Board will exercise its discretion to accommodate the gas supply evidence filed by TCGS. However, as indicated in section 2.4, "Specific Transportation Projects", the Board will not depart from its practice of imposing the standard certificate condition that, in respect of new firm export volumes, all necessary applicable long-term Canadian export authorizations have been granted and gas supply contracts have been executed prior to the commencement of construction.

2.6 Construction and Regulatory Schedule

TQM proposed an in-service date of 1 November 1998, with construction anticipated to commence around May 1998.

TQM requested that the Board approve both the original and alternative routes, in order that TQM would have obtained all of the required authorizations in time to allow the proposed facilities to commence service as scheduled. TQM was of the opinion that the Board is in the best position to assess whether the proposed construction schedule is reasonable.

M&NE challenged the validity of the projected in-service date and contended that the construction and regulatory schedule is too tight to accommodate service commencing on 1 November 1998. M&NE estimated that construction of the applied-for facilities would not begin until after late July or early August 1998. In arriving at that date, M&NE estimated the amount of time required for various processes to be completed. These processes include: the Board's CSR and Reasons for Decision; Governor in Council approval; proffering and executing shipper firm transportation contracts; the GH-2-97 Facilities Release Application; and, a possible detailed route hearing. In addition, M&NE indicated that PNGTS in the U.S. cannot begin construction until after Governor in Council approval is obtained for the TQM project. M&NE suggested that the U.S. PNGTS project may also not be completed by the 1 November 1998 in-service date.

M&NE argued that the tightness of the construction and regulatory schedule suggests that shippers would not be willing to commit to service commencing 1 November 1998. With respect to TransCanada's Facilities Release Application, M&NE submitted that any attempt by TransCanada to substitute shippers or vary TransCanada's established Expansion Policy would take additional time to resolve.

CAPP urged the Board to grant timely approval for the PNGTS Extension in order that TQM's project would be completed and ready for a 1 November 1998 in-service date.

PNGTS contended that approval is urgently required as the TQM facilities represent the last pipeline link required to realize the construction of the U.S. PNGTS project. PNGTS urged the Board to provide an early decision.

TransCanada agreed with M&NE that timing may become critical with TQM's project but was of the view that service could commence for the 1998-99 operating year. TransCanada argued that it has lengthy experience in implementing facilities expansions and in determining what can or cannot be done within specific time frames. TransCanada suggested two possible temporary solutions to enable TransCanada to extend its current projected 1 May 1998 construction start date but still commence service for the 1998-99 gas contract year. These suggestions included utilizing some seasonal shift flexibility allowed under its Firm Service Tendered Toll Schedule to satisfy the PNGTS-related volumes until the required facilities are constructed, and pushing the commencement date back a month or two.

TransCanada also suggested a way to speed up the facilities release process. In TransCanada's view, applying for release of the TransCanada's 1998 facilities expansion, subject to filing signed contracts which are conditioned strictly on Governor in Council approval, would allow TransCanada to apply for release of the facilities prior to having executed firm transportation contracts. Concerning the possible substitution of some projects, TransCanada submitted that substitution, if applied for as part of the facilities release application, may or may not be contentious. TransCanada argued that substitution would be no different than an assignment of one shipper's capacity to another, if the market is the same.

The Province of New Brunswick believed that M&NE's concerns regarding the forecasted construction and regulatory schedule were speculative. It submitted that, if the facilities are approved by the Board, the shippers would have a clearer view of the future. Obstacles could be removed by the parties involved to facilitate the signing of the agreements and TQM's project would proceed.

Views of the Board

The Board notes M&NE's concern that the possibility of a delay in the in-service date of the proposed TQM facilities raises concerns about whether shippers would be willing to commit to service commencing 1 November 1998. The Board also notes that CAPP and PNGTS both urged the Board to grant timely approval for the PNGTS Extension in order that TQM's project may be completed and ready for a 1 November 1998 in-service date.

The Board is of the view that, if the applied-for facilities are approved, TransCanada and TQM are in the best position to assess the risks associated with the individual shippers signing their transportation contracts for service commencing as applied-for. In particular, TransCanada is in the best position to utilize its experience in implementing facilities expansions to determine whether or how commencement of service can be met.

The Board is of the opinion that the condition set out in Section 2.4, "Specific Transportation Projects", should ensure that only capacity for firm requirements would be constructed. For this reason, the Board is not persuaded that a possible delay would necessarily have a negative impact on the utilization rate during the first year of service.

2.7 Utilization Level

M&NE and Union raised several utilization-related issues including: market uncertainty caused by a large portion of the requested capacity not being underpinned by executed long-term, end-user contracts; the impact of an uncertain in-service date on the level of facility utilization in the first year of service; and the impact of a potential pressure surcharge on shippers' willingness to execute firm transportation contracts with TransCanada.

TQM suggested that, if approval of these facilities is made conditional upon TransCanada signing a firm service contract with TQM, there would be no doubt regarding the economic feasibility of the applied-for facilities or whether they would be used and useful.

Union questioned whether the facilities would be utilized at a reasonable level and suggested that approximately only 40 percent of the transportation capacity has been contracted on a year-round basis and under long-term arrangements. Union stressed that TCGS's and CoEnergy's volumes, which represent approximately 72 percent of the gas that would be contracted for delivery to East Hereford, have yet to find purchasers for this gas. In respect of the second year of service, Union further noted that there is no evidence of any end-use market for additional transportation capacity. Union submitted that TransCanada's shippers should not be exposed to the risk of under-utilized capacity.

TransCanada argued that it had submitted evidence during the hearing which reconfirmed that the volumes contracted to East Hereford represent only a fraction of the potential of the U.S. Northeast market.

TransCanada contended that, even though some of the PNGTS-related shippers cannot guarantee 100 percent load factor deliveries, the transportation contracts would be executed and the demand

charges would be paid because, in its opinion, the demand is substantial. TransCanada further suggested that the capacity could be available for utilization by other TransCanada shippers, for example, through the use of assignments or diversions.

PNGTS submitted that TQM's proposed project is a ripe project with good market prospects. PNGTS noted that the majority of the U.S. PNGTS project sponsors have an equity interest in other large pipeline facilities and are affiliated with experienced marketers who are shippers on TQM's proposed extension, or are affiliated with TQM shippers' clients.

In respect of the impact of an uncertain in-service date on the level of facility utilization in the first year of service, M&NE submitted that shippers downstream on the U.S. PNGTS system with only winter firm service may not be willing to commit to transportation contracts if the 1 November 1998 in-service date may not be achieved. M&NE noted that the Direct Energy and CoEnergy winter-only volumes to Bay State, Granite State and Northern Utilities represent approximately 2.41 $10^6 m^3/d$ (85 MMcfd), or approximately half of the first-year volume of 4.31 $10^6 m^3/d$ (152 MMcfd). M&NE further noted that Granite State has obtained an option to extend its Portland/Montreal Pipeline lease to cover transportation for the 1998-99 Winter Season[1] and that this option would be exercised if it appears that regulatory or other delays would prevent PNGTS from providing service in time to meet the heating season requirements during that period. M&NE submitted that the GH-1-97 and GH-2-97 records establish that Northern Utilities, Granite State and Bay State must secure winter gas supplies on 1 November 1998. M&NE further submitted that the fact that the Portland/Montreal Pipeline transportation contingency exists may have an effect on the use of the facilities proposed for 1998-99.

Union agreed with M&NE and contended that, with the Portland/Montreal Pipeline lease option available to Northern Utilities as a transportation contingency plan, there is a possibility of TQM's project not being in-service for the 1998-99 operating year.

TransCanada submitted that issues related to the possibility of under-utilized facilities in the initial year should not be cause for delay. TransCanada stated that, if it had a high degree of confidence that the firm transportation contracts would be signed within the near future, TransCanada may proceed "at risk".

With respect to the Portland/Montreal Pipeline lease option, PNGTS emphasized that the bridging arrangement was very much a second choice as the capacity commitment of its clients on the U.S. PNGTS system is twice the current requirement for delivery to Northern Utilities via Portland/Montreal Pipeline. As well, PNGTS argued that exercise of the option would be very expensive and would curtail marketing efforts and limit growth in Northern Utilities' franchise area.

Concerning the impact of a potential pressure surcharge on shippers' willingness to execute firm transportation contracts with TransCanada, TransCanada submitted that the imposition of the standard certificate condition, that prior to commencement of construction, TQM or TransCanada, or both, demonstrate to the Board that transportation contracts have been executed, would resolve any concern in that regard. However, TransCanada suggested that it considers the market evidence sufficient in this case to justify a certificate without such a condition.

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[1] An amendment of the lease agreement, which requires FERC approval, gives Granite State until 1 August 1998 to exercise the option.

Views of the Board

The Board notes that M&NE and Union raised a doubt with respect to whether the applied-for facilities would be used at reasonable levels, in particular, during the first year of operation. However, the Board is not persuaded that the proposed extension would be utilized at a low rate given the potential of the U.S. Northeast market, the broad market support for TQM's project, and the fact that the capacity would be available, if required, for utilization by other TransCanada shippers.

Concerning the capacity requested by TCGS and CoEnergy, which represents a large portion of the applied-for capacity currently not contracted under long-term end-user arrangements, the Board recognizes that these shippers are experienced, financially sound marketing companies who are affiliated with entities or have clients who are affiliated with entities who have an equity interest in upstream or downstream projects. TCGS, CoEnergy, their clients and their affiliated companies have a vested interest in maximizing their use of interconnecting capacity to capture market share and to mitigate the risk of unutilized capacity. Thus, the Board is satisfied, subject to the condition set out in Section 2.4, "Specific Transportation Projects", that the applied-for facilities would be used at reasonable levels. Further, the Board is satisfied that the condition set out in Section 2.4 would ensure that only firm aggregate requirements underpin the new proposed facilities.

Chapter 3

Facilities

3.1 Specific Facilities

The facilities included in TQM's application, and considered in the GH-1-97 proceeding, include a 213.2 km long 610 mm diameter pipeline, from Lachenaie to East Hereford. The maximum operating pressure of the proposed pipeline is 9930 kPa. For the 1998-1999 operating year, TQM proposed to install a 7.0 MW electric-driven compressor at Lachenaie and two meter stations located at Waterloo and East Hereford. TQM expects to place these facilities in service by 1 November 1998. For the 1999-2000 operating year, TQM proposed to add one 3.2 MW electric-driven compressor at the East Hereford meter station, and one aftercooler at Lachenaie. TQM expects these facilities to be in-service by 1 November 1999. TQM further proposed to upgrade its control and communication system to include the proposed compression facilities and meter stations. The estimated total capital cost of these facilities is $273.8 million ($1997). See Table 3.1 for detailed costs.

Table 3.1
Cost of Proposed Facilities
($1997)

Description	Cost (000)	
1998 Construction		
610 mm diameter pipe from Lachenaie to East Hereford (213.2 km)	218,336.1	
7.0 MW electric-driven compressor at Lachenaie	21,420.0	
Meter Station - Waterloo	854.6	
Meter Station - East Hereford	1,311.4	
Direct Costs	241,922.1	
Indirect Costs	17,176.5	
Total - 1998		259,098.6
1999 Construction		
3.2 MW electric-driven compressor at East Hereford	12,219.0	
Aftercooler at Lachenaie Compressor Station	1,473.9	
Direct Costs	13,692.9	
Indirect Costs	972.2	
Total - 1999		14,665.1
Total Capital Costs - 1998 and 1999		273,763.7

Gaz Métropolitain and TransCanada, who are the owners of TQM, explained that they negotiated to determine which of TQM or TransCanada would build the facilities to connect to the proposed PNGTS facilities in the U.S. In the negotiations, it was agreed that TQM would build the facilities and that Gaz Métropolitain would guaranty that certain capital costs to be incurred by TQM would not exceed agreed-upon estimates. In the event of a cost overrun, Gaz Métropolitain would pay TQM the excess costs. Gaz Métropolitain stated that its guaranty extends to all the costs associated with TQM's PNGTS Extension except those associated with the East Hereford compressor station, the aftercooler at Lachenaie and the meter stations at both Waterloo and East Hereford.

3.2 Appropriateness of Design

In the operating year 1998-1999, TQM proposes to deliver 0.96 $10^6m^3/d$ (33.7 MMcfd) of gas at Waterloo and 4.31 $10^6m^3/d$ (152.2 MMcfd) at East Hereford. TQM indicated that, in operating year 1999-2000, these deliveries would increase to 1.38 $10^6m^3/d$ (48.7 MMcfd) and 5.95 $10^6m^3/d$ (210 MMcfd) at Waterloo and East Hereford respectively. During the hearing, TQM submitted that it has received a request to deliver an additional 1.27 $10^6m^3/d$ (45 MMcfd) at East Hereford starting 1 November 1999.

In designing the facilities for the proposed PNGTS Extension, TQM also analyzed a 508 mm diameter pipeline with additional compression. TQM selected the 610 mm diameter design as optimal on the basis of present and reasonably anticipated market growth, present worth of actual owning and operating costs, operational stability and coordinated system growth. TQM submitted that, once the volumes of gas to be delivered at East Hereford reach 6.8 $10^6m^3/d$ (240 MMcfd), a present worth of actual owning and operating cost analysis favours the selection of a 610 mm pipe diameter.

According to TQM, in the second year of operation, the proposed facilities, with both compressors in operation, could deliver gas volumes of 7.22 $10^6m^3/d$ (255 MMcfd) at East Hereford and 1.38 $10^6m^3/d$ (48.7 MMcfd) at Waterloo. TQM further explained that the 610 mm diameter design had sufficient expansion potential which would defer any looping further into the future, since its capacity could be increased to a maximum of about 17.7 $10^6m^3/d$ (625 MMcfd) with the addition of compressors or aftercoolers. TQM submitted that the extent of landowner concern during the hearing in selected areas along the proposed pipeline route reinforced the importance of the selection of a 610 mm pipe diameter to defer looping.

PNGTS, Gaz Métropolitain and TransCanada supported TQM's design of the applied-for facilities and the selection of a 610 mm pipe diameter.

Union acknowledged that, from a planning perspective, the sizing of a pipeline should take into account market growth to avoid looping the line in the reasonable future. Union stated, however, that it doubted the reasonableness of the selection of the 610 mm pipe diameter for the PNGTS Extension. In Union's opinion, the pipe size that TQM chose is justified with rather speculative market expectations. Union argued that, should the applied-for facilities be approved, TQM should be put at risk pending the full utilization of the pipeline capacity.

Views of the Board

An appropriate pipeline design should take into consideration several technical and non-technical factors, including the required design capacity. This capacity is selected based on present incremental market requirements as well as reasonably anticipated market growth. Once the design capacity has been selected, specific combinations of design parameters including pipe diameter, wall thickness, pressure, required compression and other related facilities can be determined.

With respect to the capacity of the proposed facilities, the Board notes that TQM's proposed design would provide the lowest present worth of actual owning and operating costs for the anticipated gas volumes and would allow for an increase in pipeline capacity without looping. Thus, disturbance of people, soil and vegetation due to the installation of a loop line would be avoided for some time. Furthermore, a single larger pipeline is economically more attractive than two smaller diameter lines. Given the current market projection and the potential of future market growth as described by TQM, the Board is of the view that TQM's selection of a 610 mm diameter pipeline is appropriate. The Board also finds all other parameters used in the design of the proposed facilities to be acceptable.

Further, the Board finds TQM's cost estimates to be reasonable. In reaching this conclusion, the Board has taken into account Gaz Métropolitain's guaranty in respect of certain capital costs as discussed in Section 3.1, "Specific Facilities".

3.3 Safety of Design and Operation

Several intervenors expressed concerns about possible risks due to the presence of the pipeline. Some intervenors noted that the sections of the proposed pipeline that are to be located in rural areas were designed to be of a smaller wall thickness than the ones that are to be located in urbanized areas. These intervenors considered the difference in wall thickness requirement as a safety concern. Furthermore, some intervenors expressed concerns about the susceptibility of the proposed pipeline to stress corrosion cracking, and about the proposed facilities' ability to accept in-line inspection tools.

TQM proposed to design, install and operate the applied-for facilities in accordance with the NEB *Onshore Pipeline Regulations*, which specify that the design, installation, testing and operation of a pipeline must be in accordance with the applicable provisions of "Canadian Standards Association Z662 *Oil and Gas Pipeline Systems*". TQM further indicated that the design of the pipeline takes into account the conclusions and recommendations of the NEB's *Report of the Public Inquiry Concerning Stress Corrosion Cracking on Canadian Oil and Gas Pipelines*, dated November 1996.

Furthermore, TQM explained that routine surveillance of the right-of-way (aerial or on foot) would be performed to identify potentially dangerous conditions. TQM elaborated that, during its operations, the pipeline would also be inspected from the inside through the use of electronic in-line inspection tools, which would permit the early detection of conditions of the pipe wall that could potentially affect the integrity of the pipeline.

Accordingly, TQM submitted that the proposed facilities would be safe to operate.

Views of the Board

The safety of a pipeline depends on many factors, including pipeline design, material selection, testing, construction and inspection practices, and operating and maintenance practices. The Company is required to comply with the NEB *Onshore Pipeline Regulations*, which stipulate specific provisions in respect of these factors, and which specify that the design, installation, testing and operation of a pipeline must be in accordance with the CSA Z662 standard.

The Board notes that, during the hearing, TQM committed to design, construct, test, operate and maintain the proposed facilities in accordance with the appropriate standards and regulations. Furthermore, the Company and the Board itself would inspect the proposed facilities during construction and at regular intervals during their operation.

On the basis of the foregoing, the Board is satisfied that the proposed facilities would meet widely accepted standards, including the Board's own regulations, for design, construction, testing, inspection, operation and maintenance.

3.4 Loss of Critical Unit Protection

TQM indicated that, if a loss-of-unit is experienced during the first or the second year of operation of the proposed facilities, both the minimum throughput (4.31 $10^6 m^3/d$, or 152.2 MMcfd, for the first year and 5.95 $10^6 m^3/d$, or 210 MMcfd for the second year) and the minimum pressure (6430 kPa for the first year and 8650 kPa for the second year) could not be simultaneously met at East Hereford.

TQM indicated that it did not provide for loss of critical unit ("LCU") protection in its application because it is planning to install electric-driven compressors and that, in order to make its project economically attractive, it has assumed that it would take some time before planned maintenance would be carried out on these electric motors. According to TQM, providing LCU protection for the proposed facilities would require a second compressor unit at Lachenaie at a cost of approximately $10 million. However, TQM indicated that it would give consideration to provide LCU protection when the volumes increase and require additional compression.

In the event of a LCU condition on the proposed pipeline, TQM indicated that it would rely on Operating Balancing Agreements between parties (e.g., TQM and PNGTS) for operational offsets. Furthermore, TQM submitted that it was not aware of any discussions with the East Hereford shippers concerning LCU protection. TQM submitted that the costs, if any, resulting from a LCU condition should be determined by examining the alternative of additional compression. TQM further submitted that, if an additional unit was provided to meet the Firm Service at the Tariff pressure, all shippers should bear the "operational offset" costs. If the unit was in place to guaranty a higher delivery pressure, shippers at East Hereford should bear the "operational offset" costs.

M&NE submitted that, should LCU protection be included in the design, the costs which relate to increasing or maintaining pressure above the system average should be included in an appropriate surcharge. M&NE further submitted that, if LCU protection is not incorporated in the design, any penalty or charge associated with emergency backhauls that would be required from other pipelines to

backstop the LCU in Canada should be recovered from shippers at East Hereford if these backhauls are due to the delivery pressure above the standard tariff pressure.

Views of the Board

An assessment of the need for facilities to provide LCU protection should consider the cost of the facilities, the probability of a critical compressor unit outage, the probability of a 100% load factor gas day occurring and the likelihood of these events occurring simultaneously. Other factors should also be taken into account, such as the downstream flexibility of the system, alternative supply options, past operating history coupled with future market projections, and the consequences of TQM not being able to meet its firm obligations.

In this case, TQM determined that adding LCU protection would require the addition of a second compressor unit at Lachenaie, at an estimated cost of $10 million. The Board views this amount as a significant additional cost in the context of TQM's application. While TQM did not discuss alternative methods for providing LCU protection on the PNGTS Extension, the Board is of the view that any of these methods would nevertheless cause a significant increase in the costs of the applied-for facilities, thereby possibly reducing the economic feasibility of TQM's project. Accordingly, the Board notes that it is important to carefully weigh all of the relevant factors to determine whether, overall, there is a need for LCU protection on the PNGTS Extension.

The Board agrees with TQM that, given the predicted reliability of the proposed electric-driven compressor units, the likelihood of a LCU and the resulting flow curtailments is low, at least over the initial years of operation of the applied-for facilities. The Board notes that there is always the possibility of an unscheduled compressor outage. However, in the Board's view, given the anticipated reliability of the proposed electric-driven units, such an event is unlikely to occur simultaneously with a 100% load factor gas day. The Board is of the view that, if such an event were to occur, U.S. pipeline systems downstream of the proposed facilities would provide the required flexibility for mitigating the negative impacts of flow curtailments. Weighing all of these factors, the Board accepts TQM's design approach of not providing LCU protection on the proposed facilities at this time.

With respect to M&NE's request regarding the treatment of possible backstopping charges from other pipelines caused by a LCU in Canada, the Board considers that, should such charges be incurred, their treatment could be addressed in a proceeding under Part IV of the NEB Act.

Chapter 4

Environmental, Socio-Economic and Land Matters, and Public Consultation

4.1 Environmental Review Process

As noted in Section 1.2, "Environmental Assessment Process", a CSR was released in February 1998 addressing the Board's and DFO (Canadian Coast Guard)'s examination of the environmental effects likely to result from TQM's proposed project. The CSR takes into consideration the environmental information filed by TQM in its application, as well as comments and additional information offered by federal, provincial, regional and municipal departments, ministries and agencies, the public, intervenors and TQM itself during the GH-1-97 hearing. The report details the review process and sets out the Responsible Authorities' findings, conclusions and recommendations.

Section 4.2 of these Reasons for Decision provides a summary of the environmental assessment, a summary of the Responsible Authorities' findings, and the response of the Minister of the Environment with respect to the CSR. Section 4.3 addresses the Board's consideration of socio-economic matters, some of which were outside the scope of the CEAA but within the Board's mandate under the NEB Act. Section 4.4 addresses land matters.

The *Guidelines for Filing Requirements* of the Board require that, prior to filing a facilities application, a proponent implement a public information program which explains the applied-for project, the potential environmental and socio-economic effects of the project, allows opportunity and time for public comment, and responds to relevant concerns. Chapter 3 of the CSR details TQM's program. The Board is of the view that TQM completed an effective public notification program.

In addition to the views expressed by the Board in these Reasons for Decision, the Board adopts all of the findings, conclusions and recommendations which are set out by the Board in the CSR. The reader should, therefore, read the CSR in conjunction with these Reasons for Decision for a complete consideration of all relevant issues.

4.2 Comprehensive Study Report - Summary

4.2.1 Environmental Assessment

Through the services of Urgel Delisle & associés inc. consultants, TQM carried out a study of the environmental and socio-economic impacts of its project. The principal environmental components studied by the consultants were: agriculture, forestry, archaeology and heritage, wildlife, vegetation, and watercourse crossings.

The Responsible Authorities decided that a CSR would be prepared and filed with the Minister of the Environment and the Agency. The Board held a public hearing in respect of TQM's application, to promote public participation in the comprehensive study and collect information for the preparation of

the CSR. The Board completed an environmental assessment and CSR pursuant to the CEAA and its own regulatory process.

4.2.2 Summary of Responsible Authorities' Findings and Specialist Advice

DFO (Canadian Coast Guard) as Responsible Authority, and DFO (Fish Habitat Protection Branch) as Specialist Department, submitted that the CSR dealt with DFO's concerns in regard to the protection of fish habitat, fisheries and the protection of the right of navigation. DFO submitted several particularities in regard to its mandate pursuant to the *Navigable Waters Protection Act* and the *Fisheries Act*. The Board notes that the competent authorities of DFO, that is Fish Habitat Management and Protection of Navigable Waters, have requested to be also served with the information requirements as set out in conditions 4, 5, 9, 11 and 12 of the CSR.

Environment Canada indicated that, as a Responsible Authority, it was conducting a separate environmental assessment of the impact of the project on île aux Fermiers, which would lead to specific conditions with respect to the disposition of land interests in the island to allow passage of the pipeline. As well, Environment Canada submitted information relative to the exact timing and location of construction on île aux Fermiers.

The Board itself concluded in the CSR that TQM's PNGTS Extension project is not likely to cause significant adverse environmental effects, provided that the mitigative measures identified during the GH-1-97 proceeding are implemented and enforced.

4.2.3 Response of the Minister of the Environment

By letter sent to the Board on 31 March 1998, the Minister of the Environment referred TQM's project back to the Board as well as to DFO for action under subsection 37(1) of the CEAA. Having taken into consideration the CSR and public comments filed pursuant to the CEAA, the Minister of the Environment has concluded that the project, as described, is not likely to cause significant adverse environmental effects.

Further, the Minister of the Environment asked that the Board, jointly with DFO, confirm that all mitigative measures described in the CSR are implemented. She also recommended that the Board and DFO design and implement a follow-up program that can determine the effectiveness of the mitigative measures and verify the accuracy of the environmental assessment of the project.

The Minister of the Environment also advised that the Agency will be requesting in a few months, on her behalf, information on measures taken to mitigate the environmental effects of the project and the details and results of the follow-up program. She explained that the information will assist the Agency in ensuring compliance with the CEAA and will help determine whether the environmental assessment validly predicted effects.

> ***Views of the Board***
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> The Board has considered the CSR and the Minister of the Environment's course of action thereto, and is of the view that, taking into account the implementation of appropriate mitigative measures as identified in the GH-1-97 proceeding and the

attached conditions (see Appendix II), the PNGTS Extension proposal is not likely to cause significant adverse environmental effects.

The Board would condition any certificate to ensure that all mitigative measures with respect to the GH-1-97 proceeding and the CSR are implemented (see Appendix II).

The Board conducts its own environmental inspection and follow-up program. If a certificate is issued, the Board would carry out its own inspections and audits in accordance with the relevant legislation and project approval conditions. Further, the Board would request TQM to file post-construction environmental reports within six months of the date that each facility is placed in service and for each of the five subsequent complete growing seasons. The Board would also request TQM to file environmental noise assessments for the two compressor stations to ensure that operation noise levels are in compliance with provincial standards (see conditions 16, 17 and 18 in Appendix II).

The Board expects TQM to meet DFO's requirements as stated in DFO's letter of 18 February 1998[1] to the Board. It also expects TQM to submit the requirements set out in conditions 5, 6, 12, 16 and 17[2] set out in Appendix II of these Reasons for Decision not only to the Board but also directly to the competent authorities of DFO, that is, Fish Habitat Management and Protection of Navigable Waters.

4.3 Socio-Economic Matters

A number of socio-economic matters were raised during the hearing. Two of these are discussed here, namely, local services and safety impacts, and economic benefits. Other socio-economic issues, such as noise, visual effects, trespass, construction practices, and hunting and fishing impacts were dealt with in the CSR.

4.3.1 Local Services and Safety Impacts

Several intervenors raised issues about possible negative effects of the proposed facilities on local services. The effects which received most attention related to medical and protective services. There were concerns about access to hospital and ambulance services in the more remote areas of the Eastern Townships. In their view, injury victims of a gas pipeline incident could experienced a lengthy wait for medical attention and ambulance evacuation services. The protective services issues were those associated with the need for emergency response planning and for the training and equipping of volunteer fire fighters for their new roles associated with a gas pipeline emergency. Of particular concern were the determinations of who would be responsible for the planning and who would pay the costs of the emergency planning, training, equipment and response. Finally, other issues were the effect of construction on roadway safety and congestion, and the availability of accommodation in the Eastern Townships, and East Hereford in particular.

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[1] See Addendum I of the CSR for a copy of this letter.

[2] These conditions correspond to conditions 4, 5, 9, 11 and 12 of the CSR.

In respect of basic hospital and medical services, TQM maintained that an acceptable level of all public services is available within approximately 40 km of the pipeline corridor. As well, regional hospital facilities are located along the proposed pipeline, at Montreal, Longueuil, Saint-Hyacinthe and Sherbrooke. In TQM's view, its project would not appreciably increase the demand for medical services. The Company committed to ensure that its contractors meet the provincial safety and health code, which requires the provision of medical evacuation services during construction. Because TQM committed to design, build and operate the pipeline to achieve an acceptable integrity standard, the likelihood of incidents was seen to be low.

TQM undertook to assist municipalities in developing emergency response plans and to provide protective services personnel with the necessary training to deal with gas pipeline incidents. TQM stated that it was unlikely that any special equipment would be required. TQM also agreed to consult with the municipality of East Hereford on ways and means that the Company's communications system could be used to overcome gaps in East Hereford's emergency communications system.

A number of commitments were made to avoid or minimize traffic problems. TQM undertook to verify its transportation plans and activities with the Quebec Ministry of Transport and with municipalities, prior to and during construction. The Company stated that it would comply with all highway codes to avoid damaging roadway surfaces and structures. All crossings of highways and paved roads would be done through directional drilling. Finally, TQM maintained that pipeline work would be done quickly and would pass through any one area in a short period of time.

TQM stated that sufficient commercial accommodations for workers is available close to the Lachenaie-Boucherville and Boucherville-Waterloo construction spreads. The Company maintained that there are numerous accommodation facilities in the greater Waterloo-East Hereford region, stretching from Granby in the east to Sherbrooke in the north, and to the U.S. border in the south and west. TQM noted that Quebec construction workers historically have moved about in motorhomes and used camp grounds when working on pipeline projects. The Company maintained that, given a 250 person work force per pipeline construction spread, there would be adequate camping facilities within a 50 km radius of the work sites in the Waterloo-East Hereford region.

Views of the Board

The Board is satisfied that the planning process followed by the Company took into account potential impacts of the project on local community services. Through dialogue with affected municipalities, MRCs and provincial authorities, frameworks would be in place to avoid or mitigate potential traffic problems and to plan for an adequate emergency response capability to be in place once the pipeline is operational. The evidence suggests that an adequate level of public services is available within a reasonable distance from the pipeline corridor. The 750 workers, divided in three construction spreads, would impose a limited call on those services, including accommodations.

4.3.2 Economic Benefits

During the hearing, there were a number of opposing views on the expected realization of substantial project benefits for Quebec as a whole and for individual regions within Quebec. On the question of overall benefits, parties debated the significance of benefits to Quebec, and whether or not the main

beneficiary was the U.S. Northeast, because approximately 90% of the natural gas would be destined for that market. Intervenors also debated the adequacy of the share of project expenditures that would accrue to Quebec, and whether TQM had done enough to maximize local benefits. There were differences of opinion on the extent of spin-off benefits from TQM's project in terms of stimulating new industry and making existing industry more competitive.

A number of intervenors (landowners, public interest bodies and environmental groups) argued that TQM's project was of minor significance to Quebec because it was aimed almost exclusively at exporting gas to the U.S. They saw relatively minor economic benefit for Quebec at the cost of significant disruption for the public and significant environmental costs. They maintained that to the extent that there were benefits, these would accrue to the project promoters. One intervenor pointed out that the pipe for the project would be purchased outside Quebec and thus that local benefits would not be maximized.

Some intervenors stated that spin-off benefits in the form of promoting new industries were not dependent on this project and could be realized by extending existing gas distribution lines. Representatives of the Saint-Hyacinthe Union des producteurs agricoles ("UPA") argued for the need of access to natural gas to make their farm operations more competitive.

At the regional or local level, several intervenors indicated that the Eastern Townships would receive relatively little in the way of benefits because the construction labour force would largely come from outside the region and the construction would only span a six month period. Intervenors saw the two operations jobs in the Montreal area and six operations jobs in the Eastern Townships as being of no net benefit. They felt that existing local jobs could be potentially lost if an environmental accident affected tourism, forestry, fisheries or farming operations. They also saw the project as a deterrent to investment in resource-based activities in the region because of the uncertainty of the project's environmental effects over time.

Intervenors were concerned that municipal support for the proposed facilities was based in part on the desire for the property taxes that TQM would pay. They perceived that the pipeline facilities would depreciate over time and tax revenue would decline. They also submitted that, at some point in time the costs of providing services, for example during an incident situation, could exceed the contribution of the pipeline facilities to municipal tax revenues. Finally, some intervenors saw their property value being adversely affected by the project.

Parties favouring the project (development interests, local and regional governments and the Province) considered the project as a necessary part of an energy strategy of broadening energy choices and more closely integrating Quebec within the North American natural gas market. These parties also maintained that the route of the pipeline would make possible the servicing of unserviced areas in the Eastern Townships, such as Coaticook, and rectify the current winter supply interruptions problem in eastern Quebec. They were concerned that without the export component, a pipeline servicing the southeastern part of the Province would not be economically viable.

TQM maintained that the bulk of construction benefits would occur in Quebec and only specialized materials and equipment, not locally available, would be brought from elsewhere. While the main contractors would be from outside Quebec, they would be expected to form strategic alliances with Quebec firms. All welders and tradespersons would be Quebec residents and local labour and subcontractors would be given preference, as would the purchase of local supplies. An estimated

400 person-years of direct employment and 1 500 person-years of indirect employment would be created during the six month construction period. Notwithstanding a set of policies favouring local benefits, TQM did not provide information concerning the proportion of project expenditures that would be spent in Quebec. Although the pipe, prime contractors and special services would be from outside Quebec, the bulk of the work force, services and supplies would be sourced in Quebec.

TQM estimated that the share of overall project expenditures expended in the Eastern Townships, based on the kilometres of pipeline in that region, would be some $80 million. Even if this was a reasonable estimate, it is not possible to determine what portion of that amount would be paid to local workers and suppliers. The Company stated that the benefits impact would largely depend on the capacity of each region to supply required services, and gave the example of the Montreal region providing the majority of welders. This suggests that the less urbanized areas along the proposed pipeline route may lack the capacity to provide services and would accordingly have lower levels of benefits.

In response to intervenors' concerns that the municipal tax revenue from a pipeline would decline over time, TQM maintained that although, in theory, the pipeline value might depreciate over time, in practice, continued improvements are made to a pipeline. Thus, the facilities typically retain much of their original value over time. TQM estimated that it would pay municipal taxes of $1.5 million per year on its proposed pipeline facilities.

In response to intervenors' concerns that property values may decline due to proximity to a pipeline, TQM stated that in its experience, based on its other operations, there had been no effect on property value from the presence of a gas pipeline. The Company also noted that, according to the advice of assessment experts, there is generally no loss of land value.

Views of the Board

On the basis of the balance of the evidence on the overall project benefits, the Board believes that the benefits would be significant, particularly at the national and provincial levels. At the national level, TQM's proposed facilities would provide Canadian gas producers increased access to the growing U.S. Northeast market. There would also be national benefits in terms of pipe manufacture and the specialized pipeline contract work.

The bulk of the planned $274 million project expenditure would be made in Quebec, and would have a positive short-term impact on the construction sector. Positive impacts would also stem from eliminating winter gas interruptions, servicing new areas and the growth of net municipal tax revenues.

The Board notes that there are some difficulties in drawing a conclusion on the regional distribution of benefits. As noted above, TQM has expressed a doubt with regard to certain regions having the capacity to provide construction services. TQM must, as it has suggested during the hearing that it would, closely monitor local hiring and take corrective actions. It must also do the same with respect to local procurement performance. The ideal forum for reviewing the results of the Company's local benefits commitments would be the proposed joint TQM-public vigilance committees, because it is intended to resolve local issues and build company and community relations.

The Board notes that, following the representation of the Saint-Hyacinthe UPA at the hearing, there was an agreement among the Saint-Hyacinthe UPA, Gaz Métropolitain and the Régie de l'énergie to provide access to natural gas to a number of agricultural operators, in an effort to make their operations more competitive.

With respect to the concerns on declining municipal tax revenues over time, the Board believes that a pipeline is no different than any other line of business where facilities may depreciate over time if improvements are not made. In general, however, improvements are made and the facilities continue to be used long past their initially projected life span.

The Board was not convinced by the evidence presented by intervenors that land values in general would be adversely affected by the presence of the proposed pipeline.

The Board takes note of the argument that the pipeline facilities would pose a level of risk to the integrity of the environment and that investment decisions by environmentally-related enterprises would hinge on the perception of risk. The Board notes that: the probability of an incident causing significant adverse environmental damage is low; any such damage would be limited and localized; and the Company has the insurance and asset base to remediate any damage or make restitution. The Board does not believe that the presence of the pipeline would be a determining factor in most investors' decisions on projects depending on environmental quality.

4.4 Land Matters

Most of the discussions regarding land matters are found in the CSR. Three matters are addressed in these Reasons for Decision: the width of the required right-of-way (Section 4.4.1); the approval of the routing, including the matter of approval of both the initially-proposed route and alternative routes in the region of the MRC of Memphrémagog (Section 4.4.2); and the requirements for the 30 m zone (Section 4.4.3).

4.4.1 Land Requirements

In its application, TQM stated that it would require a 23 m wide permanent right-of-way for the entire length of the proposed pipeline from Lachenaie to East Hereford. TQM also stated that it would require 10 m of temporary workroom as well as additional temporary workroom for the crossing of rivers, roads and railways.

During its opening statement in Magog-Orford, TQM, citing several factors, established that in agricultural zones, a 23 m wide right-of-way is required for the construction of the pipeline. In forested areas, however, TQM stated that it would, wherever possible, limit clear-cutting to an 18 m wide swath, albeit, still acquiring a 23 m wide right-of-way.

TQM maintained that a 610 mm diameter pipe is required to transport natural gas from Lachenaie to East Hereford. TQM stated that the diameter of the pipe and the width of the right-of-way are related. The heavy equipment used to excavate a trench deep enough to accommodate a 610 mm pipe, transport the sections, and execute its "lowering-in" would be large and would require a large space in

order to operate safely. Once the pipeline is installed, safe maintenance practices, which may include daylighting the pipeline, would continue to require a 23 m wide right-of-way.

In agricultural zones, TQM stated that the protection of topsoil creates the need to separate spoil and topsoil piles, which in turn, augments width requirement. In the case of forested areas, however, TQM explained that protection of topsoil is not an issue so that it can reduce the width required to safely construct the pipeline to 18 m. In the event that TQM encounters circumstances within the forested areas that create the need for a width greater than 18 m, which may include the presence of topsoil, humid zones or limited load bearing capacity of the ground, it explained that it may utilize the remaining 5 m of the acquired right-of-way.

Figure 4.1 shows TQM's proposed rights-of-way width requirements in agricultural lands and forested areas.

Views of the Board

Because of the potential effects on affected landowners, the amount of land (whether acquired as a servitude or temporary workspace) required for pipeline construction is of concern to the Board. The Board finds that TQM's anticipated requirements for easements and temporary workspace are reasonable and justified.

The Board accepts TQM's commitment to limit clear-cutting in forested areas to 18 m, where possible, while still maintaining a 23 m wide permanent right-of-way. The Board also accepts that TQM may extend the clear-cutting to the full 23 m in humid zones, areas where topsoil is to be protected and in areas of limited load bearing capacity.

4.4.2 Initially-proposed Route and Alternative Routes

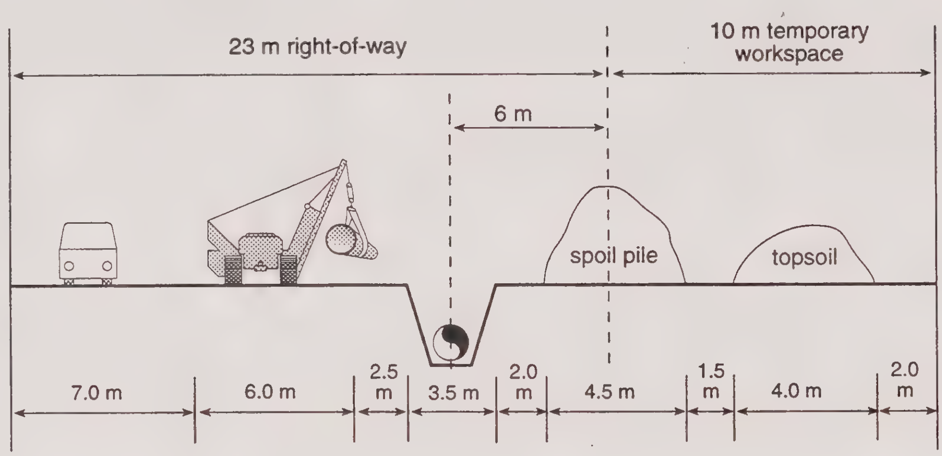
In respect of the MRC of Memphrémagog, in addition to the initially-proposed route, TQM proposed two alternative routes in the Stukely-Sud/Austin and Highway 55 areas, as fully described in the CSR. During final argument, TQM requested that the Board approve the initially-proposed route as well as the two alternative routes, albeit expressing a strong preference for the alternative routes. That request was conditional on TQM's obtaining the required authorizations.

Views of the Board

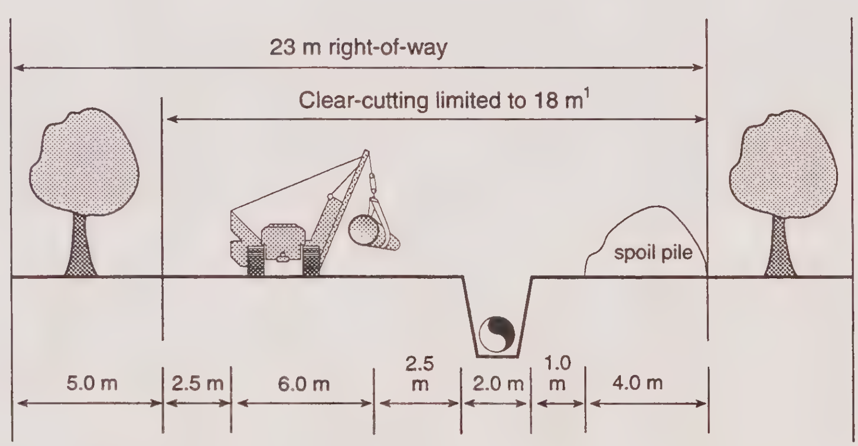
Considering the level of opposition to the initially-proposed route within the MRC of Memphrémagog and TQM's preference for the alternative routes in the Stukely-Sud/Austin and Highway 55 areas, the Board is of the view that it should approve only the alternative routes in these areas and reject the initially-proposed route.

Figure 4.1
Proposed Rights-of-Way Width

Pipeline right-of-way through agricultural lands



Pipeline right-of-way through forested lands



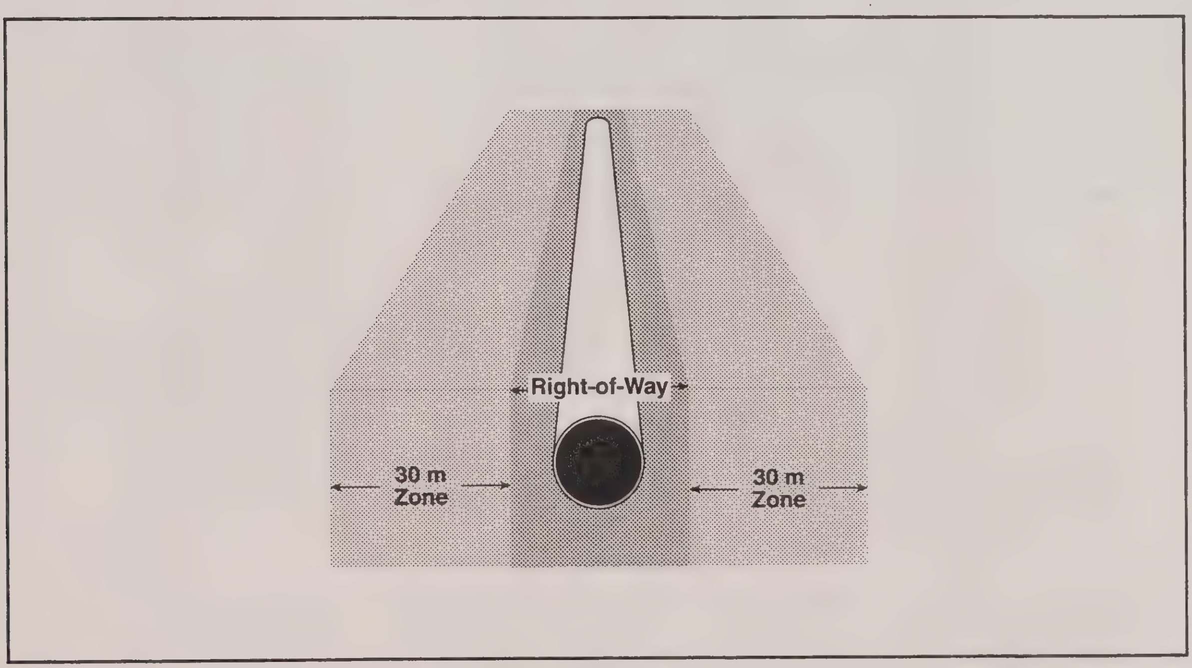
[1] TQM has committed to reduce clear-cutting in forested areas to 18 m. However, it may require clearing of more than 18 m of width when the carrying capacity of the soil leads to further tree clearing, space is required to properly manage the top soil and subsoil, and additional space is required at road crossings in wooded areas, to permit horizontal drilling, or in wetlands.

4.4.3 Section 112 of the NEB Act

Subsection 112(1) of the NEB Act, subject to subsection 112(5), regulates the construction of facilities across, on, along or under a pipeline or excavation performed by power-operated equipment or explosives within 30 m of a pipeline right-of-way (see Figure 4.2). Several landowners stated that they became aware of the requirements of the 30 m zone during the course of TQM's early public notification program.

One intervenor stated that the first indication of the 30 m zone was through the Board's September 1997 information seminar. Other landowners stated that they wrongly interpreted the requirement of subsection 112(1) as giving TQM the right to acquire additional land. Several landowners stated that they were not notified of the 30 m zone that exists on either side of the pipeline right-of-way until late in the public consultation period. One landowner also stated that a neighbour, whose land was affected by the 30 m zone but not the right-of-way, had not been advised of the zone. Intervenors questioned when all landowners would be notified of the requirements of section 112 of the NEB Act. Intervenors were also concerned that subsection 112(1) imposed a requirement to seek permission when planning excavation or construction activity within 30 m of the pipeline right-of-way affecting their property rights.

Figure 4.2
Right-of-Way and 30 m Zone



TQM indicated that the issue of the 30 m zone was raised at public information sessions during the *Bureau d'audiences publiques sur l'environnement*[1] and *Commission de protection du territoire agricole du Québec*[2] hearings and during landowner visitations. TQM added, however, that it may have missed some landowners at the beginning of the consultation program. To correct this problem, TQM stated that once the route would become definite, landowners, whose property falls within the 30 m zone, would be notified of the requirements of section 112 of the NEB Act.

With respect to intervenors' comments regarding the requirement to seek permission when planning excavation or construction within 30 m of the pipeline right-of-way, TQM further responded that the pipeline is protected by a statutory requirement of the NEB Act and by the *National Energy Board Pipeline Crossing Regulations Part I and Part II* (the "Pipeline Crossing Regulations") which provide for the safe crossing of pipelines.

During the hearing, many landowners advised the Board that they had not been made aware of the 30 m zone. As a result, the Board issued an information request to TQM inquiring as to its policy of notifying landowners of the requirements of section 112 of the NEB Act. In its response, TQM stated that to date, it had not individually communicated these requirements to landowners and tenants along the proposed right-of-way. Once the final route has been selected and approved and construction of the pipeline begins, however, TQM stated that it would communicate these requirements to all landowners and occupants.

Views of the Board

The primary purpose of section 112 of the NEB Act, including the Pipeline Crossing Regulations, is to provide for the safety of the public and for the safe operation of pipelines under the Board's jurisdiction. The 30 m zone is a statutory requirement to protect the pipeline from third party damage which may harm the environment or place the public at risk. These provisions do not create an interest in land; nor do they prevent landowners from carrying out most activities on their properties.

With respect to landowner responsibility to seek permission prior to conducting excavation or construction activity within 30 m of limits of the right-of-way, the Board would reinforce the idea that this requirement serves to protect persons working in the vicinity of the pipeline. The Pipeline Crossing Regulations outline the steps that a third party and the pipeline company must follow to protect the pipeline and, subsequently, the public and the environment, from damage which may result from unauthorized excavation or construction activity.

The 30 m safety zone should not be confused with the right-of-way acquired by the pipeline company for the construction, operation and maintenance of its pipeline. In the right-of-way, landowners are prohibited from carrying out many activities and the pipeline company acquires an interest in the land pursuant to the easement agreement. By contrast, in the 30 m zone, the pipeline company holds no property interest and

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[1] [Bureau of Public Hearings on the Environment]

[2] [Quebec's Agricultural Land Protection Board]

landowners may continue to carry out usual activities subject to the provisions of section 112 of the NEB Act and the related Pipeline Crossing Regulations.

With respect to the notification of landowners of the requirements of subsection 112(1) of the NEB Act, the Board is of the opinion that the notification process could have been improved. The Board would have expected that TQM would have notified landowners of the 30 m zone early in its public consultation and land acquisition process. All persons affected by the 30 m zone should be aware of this requirement, as early as possible, so that they have an opportunity to identify any concerns during the determination of the detailed route. Accordingly, the Board directs TQM to inform all landowners whose property falls within the 30 m zone of the requirements of subsection 112(1) of the NEB Act prior to filing of the plans, profiles and books of reference and the service and publications pursuant to paragraphs 34(1)(a) and (b) of the NEB Act.

Chapter 5

Tolling Matters

5.1 Toll Methodology

TQM proposed that rolled-in toll treatment apply to the volumes using the PNGTS Extension. To that end, TQM applied to have the Waterloo delivery point, as well as other delivery points located between Lachenaie and East Hereford in the future, included in the description of TransCanada's Eastern Zone for tolling purposes. Volumes delivered at East Hereford would be tolled in accordance with TransCanada's existing point-to-point toll methodology for exports.

With regard to the cost of the facilities covered by the cost cap agreement with Gaz Métropolitain, TQM proposed to roll-in the actual cost incurred, up to $256.8 million. With regard to the cost of the facilities not covered by the cost cap agreement, TQM proposed to roll-in the actual cost incurred.

TQM and TransCanada provided the following reasons in evidence to support rolled-in tolling and for adding domestic delivery points on the PNGTS Extension to TransCanada's Eastern Zone:

- The TransCanada pipeline and TransCanada's contracted capacity on the TQM system are fully integrated;

- The PNGTS Extension is not distinguishable from other pipeline sections on the integrated TransCanada/TQM pipeline system and should be tolled on the same basis as all other pipeline sections;

- The PNGTS Extension would serve multiple customers, just as other laterals do;

- Domestic and export pipeline laterals should receive the same tolling treatment. The country of origin or destination of gas cannot justify a different tolling treatment under prevailing law;

- The PNGTS Extension would not be used to provide a custom service. It would be used to provide standard firm and interruptible services as are offered on the integrated TransCanada/TQM pipeline system as a whole;

- The PNGTS Extension would provide other firm service customers with an additional access point to facilitate the diversion or assignment of firm service space to the secondary market, thereby enhancing the value of the shippers' firm service entitlements;

- None of the three conditions under which an incremental toll might be appropriate are present in the Application, namely that: (i) there is no proposal to treat all laterals in the same non-discriminatory manner by tolling them all incrementally; (ii) the PNGTS Extension is not a short lateral built exclusively for a single customer or plant; and (iii) the PNGTS Extension does not provide a custom service;

- Under a scenario where the domestic delivery points on the PNGTS Extension are tolled on an incremental basis, depending on the timing and costs of expansion, future customers could be assessed substantially lower tolls than the previous customers;

- The costs related to the PNGTS Extension, when rolled-in, have a negligible impact on TransCanada's Eastern Zone toll;

- Industry confidence in consistent regulatory treatment would be undermined if the Board were to depart from its consistent and long-standing precedent for rolled-in tolling when the service in question has not been shown to be unique; and

- There is nothing that particularly distinguishes the domestic and export deliveries off of the PNGTS Extension from other long-haul domestic and export delivery points in Eastern Canada.

As the hearing progressed, the focus shifted to the appropriateness of rolling in the entire costs for the Lachenaie to East Hereford extension, given the views of Union that the PNGTS Extension could have been built to a point on the international boundary near Highwater, Quebec.

Union's position was that rolled-in tolls should apply to expansions of TransCanada's system, including export laterals, but only to the extent that the expansion is accomplished at the lowest reasonable cost in the context of TQM's project. In Union's view, the lowest cost option would have been for TransCanada to expand and extend its system from the Sabrevois delivery point on the St. Mathieu Extension to a new export point at Highwater. Union submitted that the Sabrevois to Highwater route was a viable alternative and that it was abandoned purely for U.S. commercial reasons. Union argued that the change in the export point to East Hereford provided no additional benefit for TransCanada's shippers beyond those that would have been attainable by the Highwater delivery point.

Union proposed an alternate tolling methodology that included a routing surcharge for the costs over and above those of this lowest-cost option. Union stated that the routing surcharge would be recovered from the parties that would receive the benefits of this particular route and pipeline size, namely PNGTS shippers and Gaz Métropolitain.

TQM asked the Board to apply the same toll treatment to the proposed facilities as that applied to the other similar delivery points on the integrated TransCanada system. In TQM's view, its proposal is entirely in accordance with past Board decisions, including GH-5-89 and the GH-R-1-92 Decisions in the Blackhorse Extension proceeding. TQM argued that the evidence on record demonstrates that the route to Highwater is not a viable alternative and thus cannot serve as the basis for Union's proposal. TQM's proposed toll treatment for the PNGTS Extension was supported by CAPP, The Consumers' Gas Company ("Consumers'"), PNGTS, TransCanada, the Province of New Brunswick and the Procureur général du Québec.

CAPP was of the view that the decision to reroute the U.S. PNGTS project was a difficult one that was not taken lightly and one that was reasonable in the circumstances. CAPP concluded that the additional costs incurred as a result of the shift of the export point from Highwater to East Hereford are reasonable, and do not warrant the imposition of a routing surcharge as suggested by Union.

Consumers' supported the extension of the EDA to include the Waterloo delivery point, and other points along the PNGTS Extension in the future, as well as the addition of East Hereford as an export point for toll-making purposes. Consumers' was opposed to the proposal made by Union for a routing surcharge. Consumers' argued that it would be unreasonable to use the Sabrevois to Highwater route for toll-making purposes, given that FERC's adoption of its staff's Final Environmental Impact Statement effectively foreclosed the Highwater to Portland route on the U.S. side. Consumers' also urged the Board to reach the same conclusions in this case as it did in the GH-R-1-92 Blackhorse Extension Review Decision, wherein the Board took into account the integration of the Blackhorse Extension facilities with the rest of the TransCanada system and the nature of the service to be provided by the proposed facilities to rule in favour of rolled-in tolls.

PNGTS argued that the route change from Highwater to East Hereford was appropriate and was made only after giving consideration to a series of environmental and regulatory issues in the State of Vermont and to market opportunities that were developing in northern New Hampshire. The environmental issues included the requirements to utilize inboard construction over a hot oil line at watercourse crossings and a concern over inconsistency between FERC and Vermont State requirements as far as environmental compliance.

In PNGTS's opinion, the facts of the Blackhorse Extension Review proceeding closely parallel the situation in this proceeding. PNGTS stated that there are no applications to construct new pipeline capacity in the U.S. to Highwater, just as there were no applications to construct new capacity in the U.S. to Niagara Falls, New York in the Blackhorse Extension case. PNGTS asserted that rolled-in toll treatment on the TransCanada system is just and appropriate for the PNGTS Extension and disagreed with Union's position that the East Hereford situation is fundamentally different from the Blackhorse situation.

TransCanada outlined the reasons why the PNGTS could not commence at Highwater and why East Hereford was selected as the export point. TransCanada argued that Union's routing surcharge proposal does not make sense because Highwater was not a viable alternative. TransCanada urged the Board to approve the decision to route TQM's PNGTS Extension from Lachenaie to East Hereford by certificating the facilities and approving the proposed rolled-in toll methodology.

The Province of New Brunswick supported TQM's proposed rolled-in toll methodology and requested, should the Board accept that proposal, that the Board include in its Decision certain principles and precedents for the tolling treatment for TQM. The Province submitted that these precedents should be restated to let TransCanada, its shippers, and potential markets in Eastern Quebec and in the Maritimes know the principles that the Board is applying. The Province of New Brunswick also requested that the Board make a finding that certain issues about TransCanada's Policy with respect to Extensions or Service by Others need clarification, and requested that TransCanada and perhaps TQM address them in a future proceeding.

The Procureur général du Québec supported rolled-in treatment for the applied-for facilities and the inclusion in the Eastern Zone of the new delivery points off these facilities. It noted that only Union objected to full rolled-in treatment for these facilities. The Procureur général du Québec also noted that TQM's system has always been considered an integral part of TransCanada's system. It indicated that any shipper using the applied-for facilities must use upstream facilities on TransCanada's system. In that respect, the Procureur général du Québec suggested that the applied-for facilities present great

similarities with the Blackhorse Extension, which is an integral part of TransCanada's system. It argued that there is no reason to apply a different tolling methodology to the Waterloo and East Hereford delivery points than the one applied to other points of the Eastern Zone.

Views of the Board

The Board's previous views and principles on the rolled-in versus incremental toll issue have been clearly stated in prior Decisions, most notably GH-2-87, GH-5-89 and, in the case of export laterals, GH-R-1-92. The Board notes that the points included in the evidence of TQM and TransCanada listed above are consistent with the principles previously adopted by the Board. The Board also notes that no party challenged those principles in this proceeding.

No party to the proceeding argued in favour of incremental tolls. Rather, the focus was on the amount of the roll-in that should be approved for inclusion in TransCanada's tolls in light of the decision to change the export point from Highwater to East Hereford.

In the Board's view, there are clear similarities between the circumstances of the PNGTS Extension and those of the Blackhorse Extension. The two factors which the Board had regard for in the Blackhorse proceeding are important in this case. Those factors are: (1) the degree to which the PNGTS Extension would be integrated with the rest of TransCanada's system; and (2) the nature of the service to be provided by the proposed facilities in relation to the service provided by the rest of TransCanada's system.

With respect to the first factor, no party questioned that the PNGTS Extension would be integrated with the rest of TransCanada's system. On this point, the PNGTS Extension could not be used in isolation but must be used in conjunction with other facilities on the integrated TransCanada/TQM system. The Board is satisfied that the PNGTS Extension would be integrated with the rest of TransCanada's system.

With respect to the second factor, except for the delivery pressure surcharge at East Hereford, the nature of the service to be provided on the PNGTS Extension would clearly be the same standard firm and interruptible services that are provided on the rest of the integrated TransCanada/TQM system. These services would be provided in accordance with the existing Tariff requirements and would not be classified as a custom service.

In summary, the Board finds that the PNGTS Extension would form part of TransCanada's integrated system and that the nature of the service to be provided by the proposed facilities would be similar to that provided on the rest of TransCanada's system.

Concerning Union's routing surcharge proposal, the Board agrees with those parties who argued that it would be unreasonable to use the Highwater export point for toll purposes given that there are no proposals to construct take-away capacity at that point.

Also, in response to the Province of New Brunswick's request, the Board is not convinced, at this time, that clarifications are required to TransCanada's policy with respect to Extensions and Service by Others.

5.2 Delivery Pressure Toll

TQM would deliver gas to East Hereford at a minimum pressure of 6430 kPa during the first year of operation, and a minimum pressure of 8650 kPa during the second year of operation. Because these minimum delivery pressures are higher than the minimum tariff pressure specified in TQM's Transportation Tariff, TQM proposed to apply a delivery pressure surcharge to volumes delivered at East Hereford. This surcharge would be recovered from shippers at East Hereford pursuant to TransCanada's Tariff.

The minimum delivery pressure specified in TQM's Pipeline Service Agreement with TransCanada is 4000 kPa at the Saint-Maurice delivery point, and 2800 kPa at all other delivery points. Following a request by Gaz Métropolitain for higher pressure, TransCanada requested TQM to provide a minimum delivery pressure of 4000 kPa at all delivery points on TQM's system. TQM agreed to TransCanada's request and the Service Agreement between TransCanada and TQM will be amended to this effect and filed with the Board when completed. Consistent with the proposed amendment, TQM intends to apply a delivery pressure surcharge for deliveries made at East Hereford at a pressure above 4000 kPa.

In order to determine the cost of service upon which the delivery pressure surcharge would be calculated, TQM indicated that it would include the facilities used to provide higher delivery pressure in a separate rate base. Assuming the export volumes are 4 311 $10^3m^3/d$ (152.2 MMcfd) in the 1998-1999 gas year, TQM would include in this separate rate base:

- the cost of the incremental pipe wall thickness required to increase the pipeline's maximum allowable operating pressure from 7070 kPa to 9930 kPa;
- the pro-rata share of the cost of the Lachenaie compressor; and
- the pro-rata share of the applicable operating and maintenance costs.

Assuming the export volumes are 5 949 $10^3m^3/d$ (210 MMcfd) in the 1999-2000 gas year, TQM would include in this separate rate base:

- the cost of the incremental pipe wall thickness required to increase the pipeline's maximum allowable operating pressure from 7070 kPa to 9930 kPa;
- the cost of the 3.2 MW compressor at East Hereford;
- the cost of the aftercooler at Lachenaie; and
- the applicable operating and maintenance costs.

M&NE submitted that any penalty or charge associated with emergency backhauls from other pipelines that would be required to backstop a LCU in Canada should be recovered from shippers at East Hereford if these backhauls were related to the delivery pressure above the standard tariff pressure.

M&NE was concerned that the true costs of providing the delivery pressure service would be distorted by reflecting only the lowest cost facilities in the delivery pressure toll. For example, if a compressor and an aftercooler are required to provide the delivery pressure service, M&NE asserted that the appropriate charge should include the cost of all related facilities as opposed to the lowest cost facilities.

M&NE submitted that the two new 6.3 MW compressor units to be installed by TransCanada at its Station 148 are required to raise the pressure to the level required by PNGTS at the East Hereford delivery point. M&NE argued that, as a consequence, the costs of these units at Station 148 should be charged to those seeking service at East Hereford.

Union supported M&NE's argument with respect to the delivery pressure toll. Union expressed the concern that all the real costs of the delivery pressure service at East Hereford would not be captured if the Board were to allow the exclusion of certain facilities that are required for the provision of this service.

TransCanada indicated that it intended to comply with the existing delivery pressure toll methodology, noting that no party challenged the existing methodology. TransCanada maintained that the relevant issue was the correct application of the toll methodology and suggested that this issue should be the object of a future proceeding.

TransCanada submitted that the two new 6.3 MW units to be installed at Station 148 are necessary to meet the tariff pressure along TransCanada's existing delivery points off the TQM system.

Views of the Board

The Board examined the delivery pressure surcharge on TransCanada's system as a generic issue during the GH-2-87 hearing. In its GH-2-87 Reasons for Decision, the Board expressed the view that the provision of delivery pressure above the minimum tariff pressure is a separate and distinct transportation service. In accordance with the principles of cost causation and "user-pay", the Board stated that the shippers which use and benefit from the delivery pressure service should be required to bear the associated incremental costs in order to ensure that undue cross-subsidization by other toll payers does not occur.

As the result of the GH-2-87 Decision, which was later modified by the RH-1-88 Decision, the current delivery pressure toll methodology requires that the incremental costs of providing the delivery pressure service should be recovered through an incremental, two-part toll.

The demand component of the delivery pressure toll should recover the fixed owning and operating costs of the facilities that are, or are deemed to be, necessary to raise the pressure from:

(a) the higher of:

(i) 4000 kPa; or

(ii) the prevailing line pressure that would be required at all times (including LCU conditions) in the absence of the incremental pressure obligation;

to:

(b) the requested guaranteed minimum pressure.

The commodity component of the delivery pressure toll should recover the cost of the required energy to elevate the pressure of the delivered gas to the requested level.

All shippers using a delivery point at which the guaranteed delivery pressure is in excess of the minimum tariff pressure must pay the delivery pressure toll.

The Board is of the view that the appropriate delivery pressure toll methodology that should apply to the present case is the one described above. The application of this methodology is subject to the filing with the Board of the amended Service Agreement between TransCanada and TQM prior to the in-service date of the proposed facilities.

The Board notes that no party proposed changes to the existing toll methodology for the delivery pressure service, as the object of debate was mostly directed toward the application of the toll methodology as opposed to the toll methodology itself. In this instance, however, the Board is not prepared to determine which specific facilities should be vintaged for tolling purposes. The application of the delivery pressure toll methodology and the resulting toll, if they are in dispute, could be the subject of a proceeding under Part IV of the NEB Act.

Chapter 6

Economic Feasibility

The Board examines the economic feasibility of pipeline facilities by assessing the likelihood that the facilities will be used at a reasonable level over their economic life, and by determining the likelihood that the demand charges will be paid. In the course of its examination, the Board considers several factors, including supply, markets and contractual matters, all of which TQM addressed in its evidence.

With respect to supply, TQM submitted a report prepared by Sproule, entitled *The Future Natural Gas Supply Capability of the Western Canada Sedimentary Basin 1996-2018*. The report shows that there will likely be sufficient long-term gas supplies to keep the subject facilities utilized at a reasonable level over their economic life.

With respect to markets, TQM presented several long-term gas demand forecasts to demonstrate the long-term nature of gas demand in the markets to be served by the applied-for facilities. In the U.S. Northeast market, forecasts showed that the annual growth rate of natural gas demand will range between 1.0 and 1.7 percent over the years 1995 to 2010. For its domestic market, TQM relied on a forecast produced by TransCanada that showed that projected gas demand in Quebec will grow at an average annual rate of 2.7 percent over the years 1995 to 2010. As well, TQM relied on a domestic demand forecast provided by Gaz Métropolitain that covered the years 1998 to 2003.

CAPP argued that the evidence on overall supply, a demonstrated market need and the willingness of shippers to sign long-term transportation contracts were indicators of the economic feasibility of the applied-for facilities.

Gaz Métropolitain submitted that the applied-for facilities will be used and useful over their economic life.

TransCanada noted that the Board's GH-2-97 Decision indicates that TransCanada's facilities are economically feasible if the conditions on the acquisition of upstream and downstream approvals and on the requisite shipper commitments on firm contracts are met. TransCanada underlined that these contracts underpin TransCanada's Request for Service to TQM for the proposed facilities and will form the basis of TransCanada's commitment to TQM on a firm contract.

According to TransCanada, TQM has demonstrated that it has met all of the Board's usual criteria of economic feasibility, so that the Board should find that the PNGTS Extension will serve the present and future public convenience and necessity. TransCanada suggested that the imposition of a certificate condition requiring that transportation contracts have been executed prior to commencement of construction would address any concern that the Board may have about the willingness of TransCanada's shippers to sign firm transportation contracts.

M&NE asserted that shippers may not commit to service commencing on 1 November 1998 because of delays in the regulatory and construction schedules. It believed that these delays would cause a potential loss of volumes and markets, and a potential run-up of costs. M&NE argued that, as a

consequence of such delays, there is substantial doubt that the facilities would be used at a reasonable level during the 1998-99 gas year, and that the demand charges would be paid.

The Province of New Brunswick submitted that if the Board were concerned about the possibility of uncollected demand charges in the first year of operation, the Board could address that concern in a toll proceeding. The Province suggested that the shareholders of TQM and of TransCanada should be bearing the costs of such uncollected demand charges. With respect to TQM's project schedule, the Province noted that M&NE failed to cite any precedent showing that, because the timetable for a project is tight, the Board should deny the project.

Views of the Board

In the present case, TransCanada would be the shipper on the facilities proposed by TQM. For its determination of economic feasibility, the Board examined the evidence on TransCanada's shippers with respect to supply, markets and contractual matters because these shippers underpin TransCanada's Request for Service to TQM.

Intervenors suggested that because of a possible delay in the in-service date of the proposed facilities, some shippers may not sign Firm Transportation Agreements. These intervenors suggested that, if a delay were to occur, it would negatively affect the economic feasibility of the proposed facilities because the utilization rate of the pipeline would be lower than what TQM forecasted for the 1998-99 gas year.

In this case, the Board was not persuaded that the economic feasibility of the proposed facilities was altered by the possibility of a delay in their in-service date. The Board makes its determination of economic feasibility over the entire life of applied-for facilities as opposed to each specific year of their life. The Board is of the view that the possibility of a lower than expected utilization rate during a single year of service would not, by itself, nullify an otherwise positive finding of economic feasibility. However, the tolling impact of such a lower utilization rate could be subject to a proceeding under Part IV of the NEB Act.

The Board notes the evidence of continued increases in the forecasted demand for natural gas in the market area to be served by TQM's PNGTS Extension.

Overall, the Board is satisfied that the evidence demonstrates the existence of long-term gas supply and demand. The Board is also satisfied that there is a strong likelihood that TQM's facilities, which would be part of the integrated TransCanada system, would be used at a reasonable level over their economic life and that the demand charges would be paid.

Chapter 7

Disposition

In determining whether the addition of pipeline facilities to the existing Canadian pipeline infrastructure is in the public convenience and necessity, the Board must exercise its discretion in balancing the interests of a diverse public. This task is particularly difficult where the proposed facilities require significant new right-of-way or could adversely impact the recreational and touristic vocation of a region, where there are differing views on potential utilization, or where the addition of facilities may result in increased transmission tolls. In the GH-1-97 proceeding, the Board was presented with divergent views on these particular issues, as well as others, and balanced carefully all of the evidence and the views of parties, bringing to bear in making its decisions its own experience and expertise. For the reasons set out in the preceeding chapters, the Board is persuaded that the applied-for facilities would be in the public convenience and necessity. An integral aspect of reaching this finding has been the extent of the conditions to be imposed on the approval and the commitments made by the Company.

It is important to note that the Board's jurisdiction over the applied-for facilities does not end with these Reasons for Decision. Notwithstanding the approval by this Board and any subsequent issuance of a certificate, pursuant to section 52 of the NEB Act, there are many opportunities for the Board and the public affected by this pipeline proposal to continue to address the major issues identified in the hearing. With respect to new right-of-way to be acquired, the Board has included significant conditions to protect the environment, to protect the rights of landowners, and to ensure adequate follow-up by the Company. Further, the Company has made many commitments to the Board and to affected landowners. As the project proceeds, the Board will be vigilant in its efforts to monitor and, where necessary, enforce those conditions and undertakings. For landowners who are unable to reach an agreement with the Company for the particular routing of the pipeline over their land, there is another process available to them under the NEB Act, that being the process described in sections 34 to 40 of the NEB Act, entitled "Determination of Detailed Route and Approval". Disputes related to matters of compensation can be addressed through the "Negotiations and Arbitration Proceedings" described in sections 88 to 103 of the NEB Act. Finally, with respect to tolling matters and adequacy of the utilization of the facilities, future Part IV proceedings can encompass unresolved issues that may arise.

The Board approves the alternative routes proposed by TQM in the Stukely-Sud/Austin and Highway 55 areas within the MRC of Memphrémagog, and rejects the initially-proposed route in these areas.

The foregoing chapters constitute our Decisions and Reasons for Decision in respect of the Application heard before the Board in the GH-1-97 proceeding.

The Board has found that the facilities proposed by TQM are required for the present and future public convenience and necessity. Therefore, the Board will recommend to the Governor in Council that a certificate be issued. The certificate will be subject to the conditions outlined in Appendix II of these Reasons for Decision.

The Board approves the rolled-in toll methodology for the proposed facilities. The Board also approves the addition of the Waterloo delivery point to the description of TransCanada's Eastern Zone and the addition of East Hereford as an export point on the TransCanada system. The Board also finds that the proposed methodology for the delivery pressure surcharge at East Hereford would be appropriate.

G. Caron
Presiding Member

J. A. Snider
Member

D. Valiela
Member

April 1998
Calgary, Alberta

Appendix I

List of Issues

The Preliminary List of Issues, which appeared in Hearing Order GH-1-97 and which the Board considered final by letter dated 17 October 1997, is reproduced below.

Economic Feasibility

1. The likelihood of the facilities being used at a reasonable level over their economic life and a determination of the likelihood of the demand charges being paid, having regard to, among other things:

    a) the outlook for the long-term supply of natural gas available to be transported on the proposed facilities;

    b) the outlook for the long-term demand for natural gas in the markets proposed to be served by the proposed facilities; and

    c) the ability of TQM to provide competitive transportation services for natural gas and to successfully attract natural gas to its system over the long term.

Toll Design/Tariff

2. The principle of adding the PNGTS Extension in the description of TransCanada's Eastern Zone.

3. The appropriateness of the toll design/tariff assumptions.

Technical Issues

4. The appropriateness of the design of the proposed facilities.

5. The safety of the design and operation of the proposed facilities.

Environmental Issues

6. The potential environmental effects and socio-economic effects of the proposed facilities, including a consideration of those factors outlined in the Board's scope decision dated 10 September 1997 in respect of the environmental assessment required to be conducted pursuant to the *CEAA* (reference Appendix VI for copy of scope decision).

Routing and Public Consultation

7. The appropriateness of the location of the proposed facilities and the land rights acquisition process.

8. The adequacy of the public consultation program.

Terms and Conditions

9. The appropriateness of terms and conditions to be included in any certificate or order that may be issued.

Appendix II

Certificate Conditions

1. The legal title to the pipeline facilities in respect of which this certificate is issued shall be held by TQM, which facilities shall be operated by TQM.

2. Unless the Board otherwise directs:

   (a) TQM shall cause the approved facilities to be designed, manufactured, located, constructed and installed in accordance with those specifications, drawings and other information or data set forth in its application, or as otherwise adduced in evidence before the Board, except as varied in accordance with subsection (b) hereof; and

   (b) TQM shall cause no variation to be made to the specifications, drawings or other information or data referred to in subsection (a) without prior approval of the Board.

3. Unless the Board otherwise directs, TQM shall implement or cause to be implemented all of the policies, practices, recommendations and procedures for the protection of the environment included in or referred to in its application, the environmental reports filed as part of its application or its undertakings made to other government agencies, or as otherwise adduced in the evidence before the Board during the GH-1-97 proceeding.

4. Unless the Board otherwise directs, TQM shall, prior to placing facilities into service, develop in consultation with local stakeholders and file with the Board a Community Action Program for the purposes of:

   (a) developing emergency response plans for all municipalities that could be affected by the approved facilities;

   (b) providing training to local emergency response personnel who would respond to any incidents relating to the approved facilities;

   (c) setting up vigilance committees to keep the public informed and to deal with citizens' concerns;

   (d) supporting social development projects in communities affected by the approved facilities; and

   (e) assessing the program's results against its intended goals.

5. Unless the Board otherwise directs, prior to filing of the plans, profiles and books of reference pursuant to section 33 of the NEB Act, TQM shall submit, for Board approval, any modification requiring a deviation from the route described in its application. Any such request for approval shall include:

(a) the results of public consultation (where appropriate), a list of affected landowners and the status of the land acquisition process (if any);

(b) an airphoto (where the deviation exceeds 50 metres);

(c) an environmental issues list identifying all relevant effects of the re-routes on, for instance, soils, vegetation, wildlife, hydrology and archeology; and

(d) the measures proposed to mitigate any significant adverse environmental effects.

Prior to Commencement of Construction

6. Unless the Board otherwise directs, TQM shall, no later than ten (10) working days prior to the commencement of construction of the approved facilities, file with the Board a detailed construction schedule or schedules identifying major construction activities and shall notify the Board of any modifications to the schedule or schedules as they occur.

7. Unless the Board otherwise directs, TQM shall file with the Board copies of any permits or authorizations which contain environmental conditions for the applied-for facilities issued by federal, provincial and other permitting agencies, as these authorizations or permits are received. In addition, TQM shall maintain, in the construction office(s), files containing any such information.

8. Unless the Board otherwise directs, TQM shall, no later than fourteen (14) working days prior to the commencement of construction of the approved facilities, demonstrate to the Board's satisfaction that it has obtained the necessary approvals and authorizations relating to any federally regulated railway crossings which fall within the Canadian Transportation Agency's mandate.

9. Unless the Board otherwise directs, TQM shall, prior to the commencement of construction of the approved facilities, demonstrate to the Board's satisfaction that:

(a) in respect of new firm export volumes, all necessary United States and Canadian regulatory approvals, including applicable long-term Canadian export authorizations, have been granted; and

(b) in respect of the transportation services of new firm volumes on the TQM system:

(i) transportation contracts have been executed, including the service contract between TQM and TransCanada;
(ii) all necessary United States and Canadian regulatory approvals have been granted in respect of any necessary downstream facilities or transportation services; and
(iii) gas supply contracts have been executed.

10. Unless the Board otherwise directs, TQM shall, prior to the commencement of construction of any of the approved facilities, submit for Board approval:

(a) a capabilities versus requirements table, in the same format as Table 1 under the tab "Facilities" of Exhibit B-3 of the GH-1-97 proceeding, showing the flow-in capacity at Lachenaie and those requirements for which condition 9 has been satisfied; and

(b) flow schematics of the TQM system demonstrating that those approved facilities which are to be released for construction are necessary to transport gas according to the requirements referred to in subsection (a).

11. Unless the Board otherwise directs, except for the construction of watercourse crossings, TQM shall, prior to the commencement of construction, file with the Board a summary detailing the results of discussions with all appropriate interest groups and relevant regulatory agencies. In addition, TQM shall maintain information files in the construction office(s) which include:

(a) a detailed listing of all site-specific mitigative measures to be employed as a result of undertakings to interest groups or regulatory agencies; and

(b) an explanation of any constraints identified that may affect the construction program.

12. Unless the Board otherwise directs, TQM shall file for Board approval, no later than twenty (20) working days prior to the commencement of construction work on the watercourse crossings, additional information regarding:

(a) a re-assessment of fish and fish habitat sensitivity made from direct observations on-site, including the following information:
i) the distribution of salmonids;
ii) the presence of salmonids in a tributary;
iii) the presence of a spawning ground within 100 m of a watercourse crossing;
iv) the presence of a spawning ground for warm water species within 100 m of a watercourse crossing;
v) the presence of an endangered or threatened species;
vi) the presence of a spawning migration;
vii) a sensitive spawning and nursery habitat downstream; and
viii) the risk of sediment transport.

(b) in respect of those watercourse crossings which have been found to be sensitive, as a result of the re-assessment in (a) above:
i) the exact location and area of spawning grounds found within 100 m of the watercourse crossing;
ii) the percentage of the spawning grounds that is affected by construction;
iii) the species spawning at these sites;
iv) the exact dates of construction;
v) a detailed description of the construction method to be used;
vi) sedimentation control plans;
vii) estimates of expected losses of habitat and productivity;
viii) development of a follow-up program on the productivity of the spawning grounds after construction;
ix) site-specific mitigative and restorative measures to be employed as a result of undertakings to regulatory agencies;

x) evidence to demonstrate that all issues raised by regulatory agencies have been satisfactorily resolved, as well as updated environmental assessments for those areas where deficiencies were noted; and

xi) status of authorizations, including the wording of the environmental conditions.

During Construction

13. Unless the Board otherwise directs, TQM shall, during construction, ensure that specialized habitat for wildlife and plants with a designated status will be avoided, relocated or restored in consultation with appropriate regulatory agencies.

14. Unless the Board otherwise directs, TQM shall, during construction, maintain for audit purposes at each construction site, a copy of welding procedures and non-destructive testing procedures used on the project together with all supporting documentation.

Post Construction

15. Unless the Board otherwise directs, TQM shall file, within six (6) months of placing any of the approved facilities into service, file with the Board a report providing a breakdown of the costs incurred in the construction of the approved facilities, in the format used in Tables 1 through 8 of the tab "Cost" of Exhibit B-3 of the GH-1-97 proceeding, setting forth actual versus estimated costs, including reasons for differences from estimates.

16. Unless the Board otherwise directs, TQM shall file with the Board a post-construction environmental report within six (6) months of the date that each approved facility is placed in service. The report shall set out the environmental issues that have arisen up to the date on which the report is filed and shall:

(a) indicate the issues resolved and those unresolved; and

(b) describe the measures TQM proposes to take in respect of the unresolved issues.

17. Unless the Board otherwise directs, TQM shall file with the Board, on or before the 31 December that follows each of the first five complete growing seasons following the filing of the post-construction environmental report referred to in condition 16:

(a) a list of the environmental issues indicated as unresolved in the report and any that have arisen since the report was filed; and

(b) a description of the measures TQM proposes to take in respect of any unresolved environmental issues.

18. Unless the Board otherwise directs, TQM shall file the following with the Board:

a) within three months after the commencement of operation of the compression facilities, and for each of the two following years, an environmental noise assessment indicating, for each of the two compressor stations, whether post construction noise levels resulting from compression equipment operating at full power are in compliance with provincial standards; and

b) upon receipt of any complaints, and during the two-year period following the commissioning of the new compression facilities, a complete description of noise-related complaints received regarding either one of the two compression stations, including the mitigative measures TQM will undertake to address the situations giving rise to those complaints.

Expiration of Certificate

19. Unless the Board otherwise directs prior to 31 December 1999, this certificate shall expire on 31 December 1999 unless the construction and installation of the facilities has commenced by that date.